Original Adoption:	August 2024
Created by:	Ocean County Curriculum Consortium
Revised on:	July 2025
Revised by:	Keith Murphy, Bay Head School

Bay Head School Fourth Grade Mathematics Curriculum	
Content Area: Mathematics	
Course Title: Elementary	**Grade Level: 4th**
Unit 1: Operations and Algebraic Thinking	**30 days**
Unit 2: Number and Operations in Base Ten	**50 days**
Unit 3: Number and Operations - Fractions	**50 days**
Unit 4: Measurement	**15 days**
Unit 5: Data Literacy	**15 days**
Unit 6: Geometry	**20 days**

Alignment with State Mandates:
The following colors are used throughout this document to indicate areas in which the curriculum is aligned with the following NJSA requirements: ● Holocaust and genocides (N.J.S.A. 18A:35-28) ● History and contributions of African-Americans (Amistad Law) (N.J.S.A. 18A:35-4.43) ● Highlight and promote diversity and inclusion (Diversity & Inclusion Law) (N.J.S.A. 18A:35-4.36a) ● History of disabled and LGBT persons included in middle and high school curriculum (Section 18A:35-4.35) ● Climate Change - to prepare students to understand how and why climate change happens, the impact it has on our local and global communities, and to act in informed and sustainable ways. Please click here for specific examples (by subject).

Introduction

- Effective mathematics education provides students with a balanced instructional program. In such a program, students become proficient in basic computational skills and procedures, develop conceptual understandings, and become skilled at problem solving. Standards-based mathematics instruction starts with basic material and increases in scope and content as the years progress. It is like an inverted pyramid, with the entire weight of the developing subject, including readiness for algebra, resting on the foundation built in the early grades.

- During the school year, the fourth-grade teachers will provide effective mathematics instruction with a balanced instructional program. The instruction will include the whole group, centers/stations, both independent and or teacher lead, as well as technology and student pairing of learned concepts. In such a program, students become proficient in basic computational skills and procedures, develop conceptual understandings, and become skilled at problem solving.

- The curriculum is aligned to the NJSL for Mathematics. Activities outlined in this curriculum infuse the Standards for Mathematical Practice. The curriculum is aligned to the NJSLS for Mathematics. Activities outlined in this curriculum infuse the Standards for Mathematical Practice.

<u>In Grade 4, instruction focuses broadly on three critical areas:</u>

1. developing understanding and accuracy, and efficiency, with multi-digit multiplication, and developing understanding of dividing to find quotients involving multi-digit dividends;

2. developing an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers;

3. Understanding that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry.

- Bay Head School's Mathematics curriculum will align with the *Savvas Realize* textbooks and topic structure. *Savvas Realize* is aligned with the New Jersey State Standards for mathematics and displays those standards for reference throughout. *Savvas Realize* breaks down the mathematics material into 16 topics that are carefully merged with the New Jersey State Mathematics Standards.
- "Topics" can be defined as sub-units provided by *Savvas Realize.* The topics provided will be a guide and reference for the classroom teacher as they continue throughout the school year.
- The topics that fulfill the requirement for each Unit will be listed in the "Core Instruction and Supplemental Materials" section of each unit. The sequence of the topics has been slightly altered to match more fluently with the New Jersey State Standards.

STANDARDS FOR MATHEMATICAL PRACTICE	
The following standards for mathematical practice should be incorporated in all units.	
MP.1 Make sense of problems and persevere in solving them.	• Find meaning in problems • Look for entry points • Analyze, conjecture and plan solution pathways • Monitor and adjust • Verify answers • Ask themselves the question: "Does this make sense?"
MP.2 Reason abstractly and quantitatively	• Make sense of quantities and their relationships in problems • Learn to contextualize and decontextualize • Create coherent representations of problems
MP.3 Construct viable arguments and critique the reasoning of others	• Understand and use information to construct arguments • Make and explore the truth of conjectures • Recognize and use counterexamples • Justify conclusions and respond to arguments of others
MP.4 Model with mathematics	• Apply mathematics to problems in everyday life • Make assumptions and approximations • Identify quantities in a practical situation • Interpret results in the context of the situation and reflect on whether results make sense
MP.5 Use appropriate tools strategically	• Consider the available tools when solving problems • Are familiar with tools appropriate for their grade or course

	(pencil and paper, concrete models, ruler, protractor, calculator, spreadsheet, computer programs, digital content located on a website and other technological tools) ● Make sound decisions of which of these tools might be helpful
MP.6 Attend to precision	● Communicate precisely to others ● Use clear definitions, state the meaning of symbols and are careful specifying units of measure and labeling axes ● Calculate accurately and efficiently
MP.7 Look for and make use of structure	● Discern patterns and structures ● Can step back for an overview and shift perspective ● See complicated things as single objects or as being composed of several objects
MP.8 Look for and express regularity in repeated reasoning	● Notice if calculations are repeated and look for both general methods and shortcuts ● In solving problems, maintain oversight of the process while attending to detail ● Evaluate the reasonableness of their immediate results

Unit 1: Operations and Algebraic Thinking	**Duration: 30 days**
Standards/Learning Targets	
Focus Standards (Major Standards)	

New Jersey Student Learning Standards:

- **4.OA.A.1** Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.
- **4.OA.A.2** Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.
- **4.OA.A.3** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies, including rounding.

Supporting and Additional Standards

- **4.OA.B.4** Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1– 100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite. C. Generate and analyze patterns.
- **4.OA.C.5** Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.
- **4.NBT.A.2** Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.
- **4.NBT.B.4** With accuracy and efficiency, add and subtract multi-digit whole numbers using the standard algorithm.
- **4.NBT.B.5** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
- **4.NBT.B.6**. Find whole-number quotients and remainders with up to four-digit dividends and one-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.

Primary Interdisciplinary Connections

- **Science-** science experiments, manipulate data, analyzing data with large numbers, reading and writing large numbers
- **ELA-** open ended questions, relevant read-alouds related to math are used to introduce and reinforce math concepts

Other titles: Marilyn Burns Math Library List

- **6.1.12.CivicsHR.11.a**: Assess the responses of the United States and other nations to the violation of human rights that occurred during the Holocaust and other genocides.

Computer Science and Design Thinking Standards

- **8.1.5.IC.1:** Identify computing technologies that have impacted how individuals live and work and describe the factors that influenced the changes.
- **8.1.5.IC.2:** Identify possible ways to improve the accessibility and usability of computing technologies to address the diverse needs and wants of users.
- **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.
- **8.1.5.DA.5:** Propose cause and effect relationships, predict outcomes, or communicate ideas using data.
- **8.1.5.AP.1:** Compare and refine multiple algorithms for the same task and determine which is the most appropriate.
- **8.1.5.AP.2:** Create programs that use clearly named variables to store and modify data.

Career Readiness, Life Literacies, and Key Skills

- **9.1.5.CR.1:** Compare various ways to give back and relate them to your strengths, interests, and other personal factors.
- **9.1.5.EG.3:** Explain the impact of the economic system on one's personal financial goals.
- **9.1.5. EG.4:** Describe how an individual's financial decisions affect society and contribute to the overall economy.
- **9.1.5.FP.1:** Illustrate the impact of financial traits on financial decisions.
- **9.1.5.FP.3:** Analyze how spending choices and decision-making can result in positive or negative consequences.
- **9.1.5.FP.4:** Explain the role of spending money and how it affects wellbeing and happiness (e.g., "happy money," experiences over things, donating to causes, anticipation, etc.).
- **9.1.5.PB.1:** Develop a personal budget and explain how it reflects spending, saving, and charitable contributions.
- **9.1.5.PB.2:** Describe choices consumers have with money (e.g., save, spend, donate).

Evidence of Student Learning

Performance Tasks/Use of Technology:	**Other Assessments:**
Conferencing/Individual Small group ● Open-Ended Questions	**Formative** ● Cooperative group learning

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- Observations
- Google Slide
- SMART Board activities
- Google Forms quizzes
- IXL Diagnostics
- Kahoot games
- Quizlet review
- YouTube videos
- Flipgrid activities
- Speaker recording

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- “Do Nows”
- Exit slips
- Analysis of student work
- Teacher observations
- Self-reflection
- Math journals
- Diagnostic Computer-Based Assessments

Summative

- Unit Review Assessments
- Unit Associated tests & quizzes
- Extension Projects
- Performance Tasks

Benchmark

- AIMSWeb Diagnostics
- Teacher Unit Assessments
- IXL Diagnostics
- Savvas Unit Assessments

Alternative

- Performance Tasks
- Student-created models
- Written/verbal explanations
- Peer assessment
- Self-assessment

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<th colspan="2">Knowledge and Skills</th>
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Essential Questions:

- How can you identify an equation?
- How can you make relationships between numbers using multiplicative comparisons?
- How can you solve multiplicative comparison problems using drawings and equations?
- How can you distinguish between multiplicative and additive comparison problems?

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Students will be able to..

- Identify an equation.
- Make relationships between numbers using multiplicative comparisons.
- Solve multiplicative comparison problems using drawings and equations.
- Distinguish between multiplicative and additive comparison problems.

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• What are some strategies we can use to solve word problems with the four operations? • What is a product/quotient? • How can we use place value patterns and properties of operations to find products and quotients? • What tells us that our answer is reasonable? • What strategies can we use to use mental math to solve multiplication and division problems? **Enduring Understandings:** *Students will know… "I can…"* • How to utilize addition and subtraction to assist with multiplication and division tasks. • How to explore comparisons. • How to solve problem situations. • How to solve multi-step problems with multiplication and division. • How to identify and describe patterns within the operations. • How to estimate and use mental math strategies related to multiplication and division. • How to apply multiplication strategies and models • How to apply division skills and models. • How to utilize factors and multiples to assist in problem solving.	• Identify strategies we can use to solve word problems with the four operations. • Understand what a product/quotient is. • Use place value patterns and properties of operations to find products and quotients. • Explain why an answer is reasonable. • Identify strategies to use mental math in order to solve multiplication and division problems.
Instructional Plan	
Suggested Activities	**Resources**

• Manipulatives and collections of materials • Tasks involving collaboration and problem-solving among the 4 operations • Multiplication/Division fact practice tasks • Hands-on Activity: Conduct a number hunt to compare whole numbers. While conducting the number hunt around the room, students will work together with their peers, showing kindness by listening to their thoughts and accepting their opinions. • "A Remainder of One" book & Lesson ideas- Students will read/listen to the story "A Remainder of One" and discuss how it feels to be left out and lonely, and that we need to not exclude and include all.	• *Additional Resources by Standard • Illustrative Math Tasks- Grade 4 • Math Milestones - Grade 4 Tasks • Math Milestones- Grade 4 Level Grids • Math Is Visual videos & Tasks • K-5 math teaching resources • Savvas Realize

Suggested Options for Differentiation

Multi-Language Learners:

- Simplify written and verbal instructions
- Provide written directions with models and diagrams when possible
- Build in more group work to allow ML students to interact and communicate with peers
- Provide vocabulary ahead of time
- Use sentence frames to give students practice with academic language
- Pre-teach as often as possible- share videos, articles, vocabulary etc. with ML students prior to use in class
- Utilize visual charts/cues
- Highlight key words
- Provide manipulatives
- Frequently check for understanding

Special Education/Students with Disabilities:

- Follow specific students accommodations and modifications as listed in individual student IEP or 504 plan
- Provide opportunities for movement
- Have manipulatives and other math resources available for student use
- Incorporate small group instruction
- Utilize visual charts/cues
- Facilitate successful experiences
- Provide tutoring if needed

- Provide positive praise to increase motivation

504 Plan:

- Behavior management support.
- Adjusted class schedules or grading.
- Extended time on tests and assignments.
- Verbal, visual, or technology aids.

Gifted and Talented:

- Differentiated assignments/projects/assessments
- Differentiate learning pace using curriculum acceleration
- Curriculum compacting
- Open ended/abstract questions to activate higher-level thinking
- Alternative modes of communication
- Student developed extension activities
- Plan self directed inquiry
- Student-created rubrics
- Opportunities to push assessment/activity boundaries
- Self-centered curriculum allowing for student choice

Students In Need of Academic Support:

- Ensure the child has access to all appropriate academic resources, both in school and at home
- Provide structure and adhere to a consistent daily routine with clear and concise rules
- Facilitate successful experiences
- Provide tutoring if needed
- Allow students to complete assignments in school
- Do not penalize for late or missing assignments/materials
- Offer encouragement and understanding
- Allow students to have personal possessions and property in school
- Give a choice to provide a sense of control

Economically Disadvantaged:

- Provide clear, achievable expectations, do not lower academic requirements for them.
- Build a safe and nurturing atmosphere
- Be flexible with assignments
- Offer several alternatives from which all students can choose.
- Allow students to finish assignments independently, or give them the opportunity to complete tasks at their own pace.
- Use real-world examples and create mental models for abstract ideas
- Provide increased knowledge base and vocabulary use about real world experiences.
- Share the decision making in class.

- Maintain expectations while offering choice and soliciting input

Culturally Diverse:

- Involve families in student learning
- Provide social/emotional support
- Respect cultural traditions
- Build in more group work to encourage interaction with peers
- Show photos, videos, and definitions when possible for culturally unique vocabulary
- Teach study skills
- Provided students with necessary academic resources and materials
- Allow for alternative assignments
- Provide visuals
- Assign peer tutor
- Support verbal explanations with non verbal cues: Gestures/ facial expressions Props, realia, manipulatives, concrete materials Visuals, graphs, pictures, maps.
- Provide positive praise to increase motivation
- Provide real world connections and emphasize the value of education
- Communicate high expectations for the success of all students

Core Instructional and Supplemental Materials

- Teachers manuals
- Math manipulatives
- Student editions
- Marilyn Burns Math Library List
- ***Savvas Realize*** (Topics 6,7,&14)

Teacher Notes:

Unit 2: Number and Operations in Base Ten	**Duration: 50 days**
Standards/Learning Targets	
Focus Standards (Major Standards)	

- **4.NBT.A.1** Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right
- **4.NBT.A.3** Use place value understanding to round multi-digit whole numbers to any place.
- **4.NBT.A.2** Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.
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No Supporting and Additional Standards

- **4.OA.A.3** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

Primary Interdisciplinary Connections

- **Science-** science experiments, manipulate data, analyzing data with large numbers, reading and writing large numbers
- **ELA-** open ended questions, relevant read-alouds related to math are used to introduce and reinforce math concepts ($1.00 Word Riddle Book, A Million Fish…More or Less, Anno's Mysterious Multiplying Jar, Math Appeal, One Grain of Rice, etc.) Other titles: Marilyn Burns Math Library List
- **6.1.12.CivicsHR.11.a**: Assess the responses of the United States and other nations to the violation of human rights that occurred during the Holocaust and other genocides.

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- Open Ended Questions
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- Google Slide
- SMART Board activities
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Other Assessments:

Formative

- Cooperative group learning
- Exit slips
- Analysis of student work
- Teacher observations
- Self-reflection
- Math journals
- Diagnostic Computer Based Assessments

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- Unit Review Assessments
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Benchmark

- AIMSWeb Diagnostics

	• Teacher Unit Assessments • IXL Diagnostics • Savvas Unit Assessments **Alternative** • Performance Tasks • Student created models • Written/verbal explanations • Peer assessment • Self-assessment
Knowledge and Skills	
Content	**Skills**
Essential Questions: • How are the digit values related within a number? • What are some ways to compare the value of numbers? • What does it mean to round? • How can we express a multiplication in words? • What words can we look for in a word problem that would tell us what operation to perform? • What is an equation? • How do you set up a multi-digit addition or subtraction algorithm? • How can we apply a formula to find the perimeter of a rectangle? **Enduring Understandings:** *Students will know… "I can…"* • How to generalize place value understanding for multi-digit whole numbers. • How to use the four operations with whole numbers to solve problems. • How to use place value understanding and properties of operations to perform multi-digit arithmetic. • How to apply a formula to find the perimeter of a rectangle.	*Students will be able to..* • Explain how digit values are related within a number. • Explain what are some ways to compare the value of numbers. • Explain what it means to round. • Explain how we can express a multiplication in words. • Explain what words we can look for in a word problem that would tell us what operation to perform. • Explain what an equation is. • Set up a multi-digit addition or subtraction algorithm. • Apply a formula to find the perimeter of a rectangle.

Instructional Plan	
Suggested Activities	**Resources**
• Games involving place value and multi-digit whole numbers • Collections of materials and manipulatives • Balloon Rounding: Students take turns holding a balloon, looking at a number and removing a finger (to match the place value amount) to see if the whole number will round up or down - balloon stays in hand if "4 or less" or floats up if "five or more" (model) • Students will work together and collaborate while rolling multiple sets of dice and comparing the numerals and place value amounts (while taking turns and accepting the thoughts of others): ○ Roll the Dice Place Value Comparing	• *Additional Resources by Standard • Illustrative Math Tasks- Grade 4 • Math Milestones - Grade 4 Tasks • Math Milestones- Grade 4 Level Grids • Math Is Visual videos & Tasks • K-5 Math teaching resources • Savvas Realize

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- Incorporate small group instruction

- Utilize visual charts/cues
- Facilitate successful experiences
- Provide tutoring if needed
- Provide positive praise to increase motivation

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Culturally Diverse:

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Core Instructional and Supplemental Materials

- Teachers manuals
- Math manipulatives
- Student editions
- Marilyn Burns Math Library List
- ***Savvas Realize*** (Topics 1,2,3,4,&5)

Teacher Notes:

Unit 3: Number and Operations-Fractions	**50 Days**
Standards/Learning Targets	

Focus Standards (Major Standards)

New Jersey Student Learning Standards:

- **4.NF.A.1** Explain why a fraction a/b is equivalent to a fraction (n × a)/(n × b) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.
- **4.NF.A.2** Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.
- **4.NF.B.3** Understand a fraction a/b with a > 1 as a sum of fractions 1/b.
- **4.NF.B.3a** Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
- **4.NF.B.3b** Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.
- **4.NF.B.3c** Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.
- **4.NF.B.3d** Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.
- **4.NF.B.4** Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.
- **4.NF.B.4a** Understand a fraction a/b as a multiple of 1/b. For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).
- **4.NF.B.4b** Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, n × (a/b) = (n × a)/b.)
- **4.NF.B.4c** Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?
- **4.NF.C.5** Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.
- **4.NF.C.6** Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.
- **4.NF.C.7** Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.

Supporting and Additional Standards

- **4.OA.A.3** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
- **4.NBT.B.5** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
- **4.NBT.B.6**. Find whole-number quotients and remainders with up to four-digit dividends and one-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.

Primary Interdisciplinary Connections

- **Science-** science experiments, manipulate data, analyzing data with large numbers, using computations with addition and subtraction of fractions and decimals
    - **3-5-ETS1-1** Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
- **ELA-** open ended questions, relevant read-alouds related to math are used to introduce and reinforce math concepts
  Other titles: Marilyn Burns Math Library List
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Computer Science and Design Thinking Standards

- **8.1.5.IC.1:** Identify computing technologies that have impacted how individuals live and work and describe the factors that influenced the changes.
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- **8.1.5.AP.2:** Create programs that use clearly named variables to store and modify data.

Career Readiness, Life Literacies, and Key Skills

- **9.1.5.CR.1:** Compare various ways to give back and relate them to your strengths, interests, and other personal factors.
- **9.1.5.EG.3:** Explain the impact of the economic system on one's personal financial goals.
- **9.1.5. EG.4:** Describe how an individual's financial decisions affect society and contribute to the overall economy.
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- **9.1.5.PB.1:** Develop a personal budget and explain how it reflects spending, saving, and charitable contributions.
- **9.1.5.PB.2:** Describe choices consumers have with money (e.g., save, spend, donate).

Evidence of Student Learning

Performance Tasks/Use of Technology:

- Conferencing/Individual Small group
- Open Ended Questions
- Observations
- Google Slide
- SMART Board activities
- Google Forms quizzes
- Kahoot games
- Quizlet review
- YouTube videos
- Flipgrid activities
- Speaker recording

Other Assessments:

Formative

- Cooperative group learning
- Exit slips
- Analysis of student work
- Teacher observations
- Self-reflection
- Math journals
- Diagnostic Computer Based Assessments

Summative

- Unit Review Assessments
- Unit Associated tests & quizzes
- Extension Projects
- Performance Tasks

Benchmark

- AIMSWeb Diagnostics
- Teacher Unit Assessments
- IXL Diagnostics
- Savvas Unit Assessments

Alternative

- Performance Tasks
- Student created models

	• Written/verbal explanations • Peer assessment • Self-assessment
Knowledge and Skills	
Content	**Skills**
Essential Questions: • How can we find all the factors of a whole number? • When is a number a multiple of another number? • How can we compare and contrast factors and multiples? • What determines a pattern? How do we find patterns among a series of numbers? • How can we tell if 2 fractions are the same **Enduring Understandings:** *Students will know… "I can…"* • Use concrete and visual models to identify factors of numbers up to 100 • Use divisibility and multiples to determine a factor. • Identify prime and composite numbers • Use rules to find patterns and identify features of the pattern • Connect reasoning about the size of a fraction to a benchmark to compare fractions • Connect fractional equivalent to a visual model • Compare fractions with the same numerator and denominator • Demonstrate decimals and fractions with denominators of 10 and 100 • Solve word problems involving money with four operations • Use visual models and place value concepts to compare decimals • Make connections between fractions, decimals, and	*Students will be able to..* • Find all of the factors of a whole number. • Identify a multiple of another number. • Compare and contrast factors and multiples. • Determine a pattern, and to find patterns among a series of numbers. • Explain if 2 fractions are the same .

money ● Sketch and draw an angle with a protractor. ● Recognize angles as additive to solve problems involving angles ● Decompose fractions into a sum of those fractions ● Understand addition and subtracting as joining and separating parts. ● Use models and equations to solve word problems ● Add fractions with denominators of 10 and 100 ● Use visual and concrete models and equations to represent and solve word problems involving addition and subtraction of mixed numbers ● Rename mixed numbers as equivalent fractions to add or subtract ● Add and Subtract mixed numbers	
Instructional Plan	
Suggested Activities	**Resources**
● Games involving fractional parts and breaking shapes into various equal segments ● Students can complete Spiral Reviews to review previous concepts ● Virtual manipulatives: Didax Virtual Manipulatives; Toy Theater Virtual Manipulatives ● Discuss how important it is to Reduce, Reuse and Recycle and how everyone needs to help to make a difference and how this makes an impact on our Earth. ○ Look up ways we can help our Earth and listen to the story "The 3 R's: Reduce, Reuse, Recycle." ○ Create fraction word problems for their peers to solve that include the Earth and ways to Reuse, Reduce or Recycle. ○ Earth Day Math Task	● ***Additional Resources by Standard** ● **Illustrative Math Tasks- Grade 4** ● **Math Milestones - Grade 4 Tasks** ● **Math Milestones- Grade 4 Level Grids** ● **Math Is Visual videos & Tasks** ● **K-5 Math teaching resources** ● **MetricSystemFREEMeasurementBINGOWorksheetFunVideo4th5thGrade-1.pdf** ● **Savvas Realize**

Suggested Options for Differentiation

Multi-Language Learners:

- Simplify written and verbal instructions
- Provide written directions with models and diagrams when possible
- Build in more group work to allow ML students to interact and communicate with peers
- Provide vocabulary ahead of time
- Use sentence frames to give students practice with academic language
- Pre-teach as often as possible- share videos, articles, vocabulary etc. with ML students prior to use in class
- Utilize visual charts/cues
- Highlight key words
- Provide manipulatives
- Frequently check for understanding

Special Education/Students with Disabilities:

- Follow specific students accommodations and modifications as listed in individual student IEP or 504 plan
- Provide opportunities for movement
- Have manipulatives and other math resources available for student use
- Incorporate small group instruction
- Utilize visual charts/cues
- Facilitate successful experiences
- Provide tutoring if needed
- Provide positive praise to increase motivation

504 Plan:

- Behavior management support.
- Adjusted class schedules or grading.
- Extended time on tests and assignments.
- Verbal, visual, or technology aids.

Gifted and Talented:

- Differentiated assignments/projects/assessments
- Differentiate learning pace using curriculum acceleration
- Curriculum compacting
- Open ended/abstract questions to activate higher level thinking
- Alternative modes of communication
- Student developed extension activities
- Plan self directed inquiry
- Student created rubrics
- Opportunities to push assessment/activity boundaries

- Self centered curriculum allowing for student choice

Students In Need of Academic Support:

- Ensure child has access to all appropriate academic resources both in school and at home
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- Allow students to complete assignments in school
- Do not penalize for late or missing assignments/materials
- Offer encouragement and understanding
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Economically Disadvantaged:

- Provide clear, achievable expectations, do not lower academic requirements for them.
- Build a safe and nurturing atmosphere
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- Offer several alternatives from which all students can choose.
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- Provide increased knowledge base and vocabulary use about real world experiences.
- Share the decision making in class.
- Maintain expectations while offering choice and soliciting input

Culturally Diverse:

- Involve families in student learning
- Provide social/emotional support
- Respect cultural traditions
- Build in more group work to encourage interaction with peers
- Show photos, videos, and definitions when possible for culturally unique vocabulary
- Teach study skills
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- Allow for alternative assignments
- Provide visuals
- Assign peer tutor
- Support verbal explanations with non verbal cues: Gestures/ facial expressions Props, realia, manipulatives, concrete materials Visuals, graphs, pictures, maps
- Provide positive praise to increase motivation
- Provide real world connections and emphasize the value of education
- Communicate high expectations for the success of all students

Core Instructional and Supplemental Materials

- Teachers manuals
- Math manipulatives
- Student editions
- Marilyn Burns Math Library List
- ***Savvas Realize*** (Topics 8,9,10,&12)

Teacher Notes:

Unit 4: Measurement	**15 Days**

Standards/Learning Targets

Focus Standards (Major Standards)

- **4.M.A.1** Know relative sizes of measurement units within one system of units including km, m, cm, mm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two column table.
- **4.M.A.2** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.
- **4.M.A.3** Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor
- **4.M.B.4** Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:
- **4.M.B.4a** An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a “one degree angle,” and can be used to measure angles.
- **4.M.B.4b** An angle that turns through n one-degree angles is said to have an angle measure of n degrees. Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. But addition and subtraction with unlike denominators in general is not a requirement at this grade.
- **4.M.B.5** Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
- **4.M.B.6** Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a

diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.

Supporting and Additional Standards

- **4.OA.A.3** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

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- **Science-** science experiments, manipulate data, analyzing data with using computations and line plot data collection
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Career Readiness, Life Literacies, and Key Skills

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Evidence of Student Learning

Performance Tasks/Use of Technology:

- Conferencing/Individual Small group
- Open Ended Questions
- Observations
- IXL Diagnostics
- Google Slide
- SMART Board activities
- Google Forms quizzes
- Kahoot games
- Quizlet review
- YouTube videos
- Flipgrid activities
- Speaker recording

Other Assessments:

Formative

- Cooperative group learning
- Exit slips
- Analysis of student work
- Teacher observations
- Self-reflection
- Math journals
- Diagnostic Computer Based Assessments

Summative

- Unit Review Assessments
- Unit Associated tests & quizzes
- Extension Projects
- Performance Tasks

Benchmark

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- Student created models
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<table>
<tr><th colspan="2">Knowledge and Skills</th></tr>
<tr><th>Content</th><th>Skills</th></tr>
<tr><td>Essential Questions:
When might it be helpful to measure objects in different units?
How are length, weight, and volume the same/different?
When might you use length/weight/volume to measure an object?
Which type of tool would you use to measure (customary and metric)?
Compare how many cups it takes to fill a larger object. Are there any patterns?
How does knowing the smaller units of a larger measurement tool help you solve a problem?
What tool is the best tool to measure …?
Is there a relationship between gallons and quarts, etc…?
Why is it important to know how much time has passed?
How does multiplication and division help you determine units of time?
Enduring Understandings:
Students will know… “I can…”
Identify customary and metric measurement benchmarks
Compare customary units of length, weight, and liquid volume
Compare metric units of length, mass, and liquid volume
Solve problems using measurements
Compare units of time
Solve problems involving elapsed time and start/finish time
Practice with mixed measures</td><td>Students will be able to..
Identify when it might be helpful to measure objects in different units.
Identify and explain how length, weight, and volume are the same/different.
Explain when to use length/weight/volume to measure an object.
Explain which type of tool you would use to measure (customary and metric).
Compare how many cups it takes to fill a larger object, and identify if there are any patterns.
Explain how knowing the smaller units of a larger measurement tool help you solve a problem.
Identify what tool is the best tool to measure.
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</table>

• Activities involving measurement of items and angles (using tools) • Manipulatives and collections of materials to measure and compare • Geoboard creations and measurements • Discuss how important it is to Reduce, Reuse and Recycle and how everyone needs to help to make a difference and how this makes an impact on our Earth. Look up ways we can help our Earth and listen to the story "Why Should I Recycle?." Create measurement word problems for their peers to solve that include the Earth and ways to Reuse, Reduce or Recycle.	• *Additional Resources by Standard • Illustrative Math Tasks- Grade 4 • Math Milestones - Grade 4 Tasks • Math Milestones- Grade 4 Level Grids • Math Is Visual videos & Tasks • K-5 Math teaching resources • Savvas Realize

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Core Instructional and Supplemental Materials

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Teacher Notes:

Unit 5: Data Literacy	**15 Days**
Standards/Learning Targets	
Focus Standards (Major Standards)	
New Jersey Student Learning Standards:	

- **4.DL.A.1** Create data-based questions, generate ideas based on the questions, and then refine the questions.
- **4.DL.A.2** Develop strategies to collect various types of data and organize data digitally.
- **4.DL.A.3** Understand that subsets of data can be selected and analyzed for a particular purpose.
- **4.DL.A.4** Analyze visualizations of a single data set, share explanations, and draw conclusions that the data supports.
- **4.DL.B.5** Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots.

Supporting and Additional Standards

- **4.OA.A** Use the four operations with whole numbers to solve problems
- **4.NBT.A** Generalize place value understanding for multi-digit whole numbers
- **4.NBT.B** Use place value understanding and properties of operations to perform multi-digit arithmetic.

Primary Interdisciplinary Connections

Literacy:

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  Other titles:http://teacher.scholastic.com/reading/bestpractices/pdfs/mbmath_TitleList.pdf
  - **SL.4.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.
  - **6.1.2.CivicsCM.3:** Explain how diversity, tolerance, fairness, and respect for others can contribute to individuals feeling accepted.
  - **6.1.5.CivicsPD.3:** Explain how and why it is important that people from diverse cultures collaborate to find solutions to community, state, national, and global challenges.
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	Alternative ● Performance Tasks ● Student created models ● Written/verbal explanations ● Peer assessment ● Self-assessment
Knowledge and Skills	
Content	**Skills**
Essential Questions: ● How do you represent and interpret data and data subsets? ● How does a line plot help you organize the data we collect? ● How do we use information from one type of data display to another? ● How can we create word problems using comparative data? ● How do we determine missing parts within a table/graph? ● How can we interpret data to determine a rule and/or pattern? ● How can a pattern help you solve a problem within a data set? **Enduring Understandings:** *Students will know… "I can…"* ● Represent and interpret line plots ● Some data can be represented using a line plot and the line plot can be used to answer several questions about the data ● Solve problems using data sets and subsets ● Numbers can be represented and compared in many ways within a data set ● Some problems can be solved by breaking apart or changing the problem into simpler ones, solving simpler	*Students will be able to..* ● Represent and interpret data and data subsets. ● Explain how a line plot helps you organize the data that is collected. ● Use information from one type of data display to another. ● Create word problems using comparative data. ● Determine missing parts within a table/graph. ● Interpret data to determine a rule and/or pattern. ● Explain how a pattern can help solve a problem within a data set.

ones, and using these solutions to solve the original problem • Recording information in a table can help	

Instructional Plan	
Suggested Activities	**Resources**

• Activities involving the organization of items and interpreting results (using tools)
• Manipulatives and collections of materials
• Geoboard creations and data correlations
• Read the story "One".
I Do: Read the story "One". We Do: Discuss why it's important to speak kindly to others and how it affects others. They Do: After reading the book and discussing, create a line plot on tracking how many times students use positive words in the classroom.
• Discuss how important it is to Reduce, Reuse and Recycle and how everyone needs to help to make a difference and how this makes an impact on our Earth.
  ○ Look up ways we can help our Earth and listen to the story "Why Should I Recycle?."
  ○ Create data word problems for their peers to solve that include the Earth and ways to Reuse, Reduce or Recycle.
	• *Additional Resources by Standard
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- Utilize visual charts/cues

- Highlight key words
- Provide manipulatives
- Frequently check for understanding

Special Education/Students with Disabilities:

- Follow specific students accommodations and modifications as listed in individual student IEP or 504 plan
- Provide opportunities for movement
- Have manipulatives and other math resources available for student use
- Incorporate small group instruction
- Utilize visual charts/cues
- Facilitate successful experiences
- Provide tutoring if needed
- Provide positive praise to increase motivation

504 Plan:

- Behavior management support.
- Adjusted class schedules or grading.
- Extended time on tests and assignments.
- Verbal, visual, or technology aids.

Gifted and Talented:

- Differentiated assignments/projects/assessments
- Differentiate learning pace using curriculum acceleration
- Curriculum compacting
- Open ended/abstract questions to activate higher level thinking
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- Allow students to complete assignments in school
- Do not penalize for late or missing assignments/materials
- Offer encouragement and understanding

- Allow students to have personal possessions and property in school
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Economically Disadvantaged:

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- Build a safe and nurturing atmosphere
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- Use real-world examples and create mental models for abstract idea
- Provide increased knowledge base and vocabulary use about real world experiences.
- Share the decision making in class.
- Maintain expectations while offering choice and soliciting input

Culturally Diverse:

- Involve families in student learning
- Provide social/emotional support
- Respect cultural traditions
- Build in more group work to encourage interaction with peers
- Show photos, videos, and definitions when possible for culturally unique vocabulary
- Teach study skills
- Provided students with necessary academic resources and materials
- Allow for alternative assignments
- Provide visuals
- Assign peer tutor
- Support verbal explanations with non verbal cues: Gestures/ facial expressions Props, realia, manipulatives, concrete materials Visuals, graphs, pictures, maps
- Provide positive praise to increase motivation
- Provide real world connections and emphasize the value of education
- Communicate high expectations for the success of all students

Core Instructional and Supplemental Materials

- Teachers manuals
- Math manipulatives
- Student editions
- Marilyn Burns Math Library List
- ***Savvas Realize*** (Topic 11)

Teacher Notes:

Unit 5: Geometry	**20 Days**

Standards/Learning Targets

Focus Standards (Major Standards)

- **4.G.A.1** Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
- **4.G.A.2** Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.
- **4.G.A.3** Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

Supporting and Additional Standards

- **4.OA.A.3** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
- **4.M.B** Geometric Measurement: Understand concepts of angle and measure angles.

Primary Interdisciplinary Connections

- **ELA-** open ended questions, relevant read-alouds related to math are used to introduce and reinforce math concepts
  Other titles: Marilyn Burns Math Library List
  - **SL.4.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.
  - **6.1.12.CivicsDP.5.a:** Analyze the effectiveness of governmental policies and of actions by groups and individuals to address discrimination against new immigrants, Native Americans, and African Americans.

Computer Science and Design Thinking Standards

- **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.
- **8.1.5.DA.5:** Propose cause and effect relationships, predict outcomes, or communicate ideas using data.
- **8.1.5.AP.1:** Compare and refine multiple algorithms for the same task and determine which is the most appropriate.

Career Readiness, Life Literacies, and Key Skills

- **9.1.5.CR.1:** Compare various ways to give back and relate them to your strengths, interests, and other personal factors.
- **9.1.5. EG.4:** Describe how an individual's financial decisions affect society and contribute to the overall economy.
- **9.1.5.FP.3:** Analyze how spending choices and decision-making can result in positive or negative consequences.
- **9.1.5.FP.4:** Explain the role of spending money and how it affects wellbeing and happiness (e.g., "happy money," experiences over things, donating to causes, anticipation, etc.).
- **9.1.5.PB.2:** Describe choices consumers have with money (e.g., save, spend, donate).

Evidence of Student Learning

Performance Tasks/Use of Technology:

- Conferencing/Individual Small group
- Open Ended Questions
- Observations
- Google Slide
- SMART Board activities
- Google Forms quizzes
- Kahoot games
- Quizlet review
- YouTube videos
- Flipgrid activities
- Speaker recording

Other Assessments:

Formative

- Cooperative group learning
- Exit slips
- Analysis of student work
- Teacher observations
- Self-reflection
- Math journals
- Diagnostic Computer Based Assessments

Summative

- Unit Review Assessments
- Unit Associated tests & quizzes
- Extension Projects
- Performance Tasks

Benchmark

- AIMSWeb Diagnostics
- Teacher Unit Assessments
- IXL Diagnostics
- Savvas Unit Assessments

Alternative

- Performance Tasks
- Student created models
- Written/verbal explanations

	• Peer assessment • Self-assessment
Knowledge and Skills	
Content	**Skills**
Essential Questions: • What is different about a set of parallel and perpendicular lines? How are they the same? • Does this figure contain parallel or perpendicular lines/lines of symmetry? • How can we compare and contrast these triangles? What makes them different or the same? • What does symmetrical mean? • How do we identify a line of symmetry in a symmetrical figure? • What makes something symmetrical? • How can we examine this pattern and determine the rule for the pattern? **Enduring Understandings:** *Students will know… "I can…"* • Identify and draw perpendicular and parallel lines • Identify and classify triangles by sides and angles • Identify and classify quadrilaterals • Measure and draw angles of two-dimensional figures • Recognize lines of symmetry • Identity and draw lines of symmetry • Generate and identify shape patterns	*Students will be able to..* • Explain what is different about a set of parallel and perpendicular lines, and how they are the same. • Identify if a figure contains parallel or perpendicular lines/lines of symmetry. • Explain how we can compare and contrast triangles, and what makes them different or the same. • Explain what symmetrical means. • Identify a line of symmetry in a symmetrical figure. • Explain what makes something symmetrical. • Examine a pattern and determine the rule for the pattern.
Instructional Plan	
Suggested Activities	**Resources**
• Manipulatives and collections of materials with geometric shapes/angles	• *Additional Resources by Standard • Illustrative Math Tasks- Grade 4

• Tasks involving collaboration and problem-solving within geometric tasks • Creating geometric shapes utilizing measurement tools and incorporating key math vocabulary • Shape sort • Hands on Activity: Conduct a Shape hunt to identify, compare and contrast the attributes of different shapes *(ex: number of sides, types of angles, parallel and/or perpendicular sides, lines of symmetry)*. While conducting the shape hunt around the room, students will work together with their peers showing kindness by listening to their thoughts and accepting their opinions. Geometry Sorts: Classifying Shapes - The Teacher Studio	• **Math Milestones - Grade 4 Tasks** • **Math Milestones- Grade 4 Level Grids** • **Math Is Visual videos & Tasks** • **K-5 Math teaching resources** • **FREE 4th Grade Geometry 16 Lessons Unit Guide with Worksheets …** • **Savvas Realize** •

Suggested Options for Differentiation

Multi-Language Learners:

- Simplify written and verbal instructions
- Provide written directions with models and diagrams when possible
- Build in more group work to allow ML students to interact and communicate with peers
- Provide vocabulary ahead of time
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