Madison Public Schools
Grade 5 Mathematics Curriculum

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Course Overview

Description

Grade 5 Mathematics is a full year course aligned to the fifth grade New Jersey Student Learning Standards. Instruction will focus on three critical areas:

- developing fluency with addition and subtraction of fractions, and developing an understanding of the multiplication of fractions and of division of fractions in limited cases
- extending division to 2-digit divisors, integrating decimal fractions into the place value system and developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations
- developing understanding of volume

The Standards for Mathematical Practice are incorporated in each unit to ensure students are developing procedural fluency, problem solving skills, and productive dispositions towards Mathematics. A Singapore Approach to Mathematics will be implemented to allow students to cover material in depth. The Singapore Mathematics Framework focuses on skills, concepts, processes, metacognition, and student attitudes. Students will move through topics using a Concrete-Pictorial-Abstract (CPA) progression to develop conceptual understanding. Students will regularly complete hands-on explorations, participate in classroom discussions, and record their thinking in journals. Successful completion of this course will require students to not only acquire mathematical skills, but to also apply them in real world situations.

Goals

This course aims to:

- encourage students to become abstract thinkers who make sense of quantities and their relationships
- develop students' ability to communicate mathematical ideas precisely and effectively
- develop students' ability to cooperatively discuss and critique ideas of one another
- enable students to become strategic mathematical problem solvers and persevere in solving problems
- build student confidence and interest in Mathematics
- empower students to monitor their thinking and regulate their learning
- develop students' ability to use, apply, and model mathematics to solve problems arising in everyday life, society, and the workplace

Materials

Core: Math in Focus Textbook 5A and 5B (Teacher and Student Editions)
Supplemental: Extra Practice & Homework Grade 5 (online), Enrichment Grade 5 (online), Reteach Grade 5 (online), Fact Fluency Grade 5, Ed Your Friend in Learning platform, unit assessments, Freckle.

Resources

The unit plans contain formative assessment, number talks, exploration activities, journal entries, independent practice, and summative assessments.

Benchmark Assessments

Students will take the Star Mathematics assessment a minimum of 3 times during the school year.

[Modifications and Adaptations for Special Needs Learners](#)

(Gifted and Talented Students, English Language Learners, Students with Special Needs, At-Risk Students, and Students with 504 Plans)

Scope and Sequence
(Pacing Guide)

Unit Number	Topic of Study	Duration (Weeks Taught)
1	Whole Number Place Value and Operations	8
2	Fractions and Mixed Numbers	3
3	Multiplication and Division of Fractions	3
4	Decimals	2
5	Four Operations of Decimals	5
6	Volume	3
7	Line Plots and the Coordinate Plane	2
8	Polygons	2

Unit 1 Overview

Unit Title: Whole Number Place Value and Operations

Unit Summary: In this unit, students will use their knowledge of place value to explain patterns in products and quotients and to multiply and divide by powers of 10. They will understand that the place value to the right of a number is 1/10 the value and the place value to the left is 10 times greater. Students will apply a variety of strategies to multiply and divide multi-digit numbers. Students will learn to apply the correct order of operations to simplify numerical expressions including parentheses and brackets. They will interpret products and quotients in real world situations and learn efficient ways to solve real world problems.

Suggested Pacing: 32 days

Learning Targets

Unit Essential Questions:
- How does the location of a number in a place-value system affect the value of the number?
- How are products and quotients related?
- Why is there an order to follow to compute answers?

Unit Enduring Understandings:
- Each place in the place-value system has a limit to the value which can be placed there.
- The same relationship exists between any two adjacent places in the place value system.
- Placement of a number into a place in the place-value system has a significant effect on its value.
- Multiplication and division are inverse relationships.
- The order of operations affects the value of the answer.

Evidence of Learning

Formative Assessments: A variety of formative assessments will be used throughout the lesson, such as Number Talks, Exploration Activities, Class Discussion, Journal Entries, Independent Practice

Summative Assessments: This unit assessment contains a variety of multiple choice, multiple select, and open ended questions that assess student understanding of the objectives and NJ Student Learning Standards listed below.

Alternative Assessments: Students will have the opportunity to demonstrate their learning by completing the chapter 1 Performance Task in student textbook/workbook.

Objectives (Students will be able to...)	Key Concepts (Students will know...)	Suggested Assessments	Standards (NJSLS)
Use knowledge of place value to multiply or divide by powers of 10 Utilize various strategies to multiply and divide multi-digit numbers Solve real world problems involving multiplication and	Write numbers in standard form and word form to millions Understand each digit of a number has a value and a place value Compare numbers using a place value chart	Chapter 1 Math Journal Chapter 1 Math Sharing problem Chapter 1 Thinking Cap #2 STEAM Project Work: National Park Service	**5.NBT.A. Understand the place value system.** 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. 2. Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in

division	Find rules to complete number patterns		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.
	Look for a pattern in the products when 10, 100, or 1,000 is a factor		**5.NBT B. Perform operations with multi-digit whole numbers** 5. Fluently multiply multi-digit whole numbers using the standard algorithm.
	Decompose a number to help you multiply by 10, 100, or 1,000		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.
	Multiply whole numbers by 10 squared or 10 cubed		
	Multiply a 2-digit number by tens		**5.OA A Write and interpret numerical expressions.** 1. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
	Multiply a 2-digit number by a 2-digit number		2. Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.
	Multiply a 3-digit number by tens		
	Multiply a 3-digit number by a 2-digit number		***Interdisciplinary Connections:*** **NJSLSA.SL1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.**
	Multiply a 4-digit number by tens		
	Multiply a 4-digit number by a 2-digit number		
	Look for patterns when dividing by 10, 100, or 1,000		***Career Readiness, Life Literacies, and Key Skills:*** **9.1.5.PB.2: Describe choices consumers have with money (e.g. save, spend, donate)**
	Decompose a number to help you divide by 10, 100, or 1,000		
	Divide a 2-digit number by a 2-digit number		**9.4.5.DC.4: Model safe, legal, and ethical behavior when using online or offline technology.**
	Divide a 3-digit number by a 2-digit number		
	Divide a 4-digit number by a 2-digit number		
	Express and interpret the product or quotient appropriately		
	Use efficient strategies, such as bar models or organized lists, to solve multi-step word problems		

Unit 2 Overview

Unit Title: Fractions and Mixed Numbers

Unit Summary: In this unit, students will understand and explore the relationships between fractions, mixed numbers, and division expressions. Students will learn to use equivalent fractions to add and subtract fractions and mixed numbers with unlike denominators. They will utilize benchmark fractions to estimate sums and differences and to check their work. Students will use a variety of strategies, such as equations, visual models, and manipulatives to solve real world problems.

Suggested Pacing: 20 days

Learning Targets

Unit Essential Questions:
- How are fractions, mixed numbers, and division expressions related?
- How is adding and subtracting unlike fractions and mixed numbers similar to adding and subtracting like fractions?

Unit Enduring Understandings:
- Fractions are interpreted as the division of the numerator by the denominator.
- Fractions must be like in order to be added or subtracted.

Evidence of Learning

Formative Assessments: A variety of formative assessments will be used throughout the lesson, such as Number Talks, Exploration Activities, Class Discussion, Journal Entries, Independent Practice

Summative Assessments: This unit assessment contains a variety of multiple choice, multiple select, and open ended questions that assess student understanding of the objectives and NJ Student Learning Standards listed below.

Alternative Assessments: Students will have the opportunity to demonstrate their learning by completing the chapter 2 Performance Task in student textbook/workbook.

Objectives (Students will be able to...)	Key Concepts (Students will know...)	Suggested Assessments	Standards (NJSLS)
Understand fractions as division Add and subtract fractions and mixed numbers Use models to solve real world problems involving fractions	Write division expressions as fractions and mixed numbers Express fractions, division expressions, and mixed numbers as decimals Find common denominators to add unlike fractions Find common denominators to subtract unlike fractions Use benchmarks to estimate sums and differences of fractions Add mixed numbers with and without renaming	Chapter 2 Math Journal Chapter 2 Math Sharing problem Chapter 2 Thinking Cap and/or Thinking Cap- Enrichment	**5.NF.A Use equivalent fractions as a strategy to add and subtract fractions.** 1. Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, 2/3 + 5/4 = 8/12 + 15/12 = 23/12. (In general, a/b + c/d = (ad + bc)/bd.) 2. Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent

	Subtract mixed numbers without renaming Subtract mixed numbers with renaming Use benchmarks to estimate sums and differences of mixed numbers Solve real-world problems involving fractions Draw models to solve one and two-step problems		the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect result $2/5 + 1/2 = 3/7$, by observing that $3/7 < 1/2$. **5.NF.B. Apply and extend previous understandings of multiplication and division to multiply and divide fractions.** 3. Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. ***Interdisciplinary Connections:*** **NJSLSA.SL1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.**

Unit 3 Overview

Unit Title: Multiplication and Division of Fractions

Unit Summary: In this unit, students will learn a variety of strategies for multiplying and dividing fractions. Students will understand how the product of two factors is affected by the size of the two factors. They will be able to multiply proper and improper fractions. Students will learn to divide whole numbers by unit fractions and unit fractions by whole numbers. Students will interpret products and quotients of fractions in real world situations.

Suggested Pacing: 20 days

Learning Targets

Unit Essential Questions:
- What does it mean to multiply by a fraction?
- What does it mean to divide by a fraction?
- Why would one need to multiply or divide by a fraction?

Unit Enduring Understandings:
- A fraction is division of the numerator by the denominator (a/b = a ÷ b).
- When multiplying by a fraction less than one, the product will be smaller than the first factor.
- When multiplying by a fraction greater than one, the product will be larger than the first factor.

Evidence of Learning

Formative Assessments: A variety of formative assessments will be used throughout the lesson, such as Number Talks, Exploration Activities, Class Discussion, Journal Entries, Independent Practice

Summative Assessments: This unit assessment contains a variety of multiple choice, multiple select, and open ended questions that assess student understanding of the objectives and NJ Student Learning Standards listed below.

Alternative Assessments: Students will have the opportunity to demonstrate their learning by completing chapter 3 Performance Task in student textbook/workbook.

Objectives (Students will be able to...)	Key Concepts (Students will know...)	Suggested Assessments	Standards (NJSLS)
Use a variety of strategies to multiply and divide proper and improper fractions Understand how the size of the factors in a multiplication problem affects the product Solve real world problems involving multiplication and division of fractions	Multiply whole numbers by proper fractions Multiply proper fractions Multiply fractions to solve real-world problems (including area) Multiply fractions and give the answer as a fractional remainder Multiply improper fractions by proper fractions Multiply mixed numbers by whole	Chapter 3 Math Journal Chapter 3 Math Sharing Problem Chapter 3 Thinking Cap and/or Thinking Cap- Enrichment STEAM Project Work: School Carnivals	**5.NF.B. Apply and extend previous understandings of multiplication and division to multiply and divide fractions.** 4. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. a. Interpret the product (a/b) × q as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations a × q ÷ b. For example, use a visual fraction model to show (2/3) × 4 = 8/3, and create a story context for this

	numbers Multiply mixed numbers to solve real-world problems Multiply mixed numbers to solve two-step real-world problems Divide a fraction by whole number Divide a whole number by a unit fraction Solve real-world problems involving multiplication and division of fractions Vocabulary: reciprocal		equation. Do the same with $(2/3) \times (4/5) = 8/15$. (In general, $(a/b) \times (c/d) = ac/bd$.) b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas. 5. Interpret multiplication as scaling (resizing), by: a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication. b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1. 6. Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem. 7. Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for $(1/3) \div 4$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $(1/3) \div 4 = 1/12$ because $(1/12) \times 4 = 1/3$. b. Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for $4 \div (1/5)$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div (1/5) = 20$ because $20 \times (1/5) = 4$. c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem.

Unit 4 Overview

Unit Title: Decimals

Unit Summary: In this unit, students will learn about decimal place value. They will write decimal numbers in expanded form, using equivalent fractions and decimals, to show the value of each digit. Students will use the value of each digit to compare and order decimals as well as round decimals to any place value. Students will recall prior knowledge of whole number place value and operations to assist in their understanding of decimal place value.

Suggested Pacing: 10 days

Learning Targets

Unit Essential Questions:
- How does the location of a number in a place‑value system affect the value of the number?
- How is place value used to round numbers?
- What is the significance of the decimal point?

Unit Enduring Understandings:
- Each place in the place-value system has a limit to the value which can be placed there.
- The same relationship exists between any two adjacent places in the place value system.
- Placement of a number into a place in the place-value system has a significant effect on its value.

Evidence of Learning

Formative Assessments: A variety of formative assessments will be used throughout the lesson, such as Number Talks, Exploration Activities, Class Discussion, Journal Entries, Independent Practice

Summative Assessments: This unit assessment contains a variety of multiple choice, multiple select, and open ended questions that assess student understanding of the objectives and NJ Student Learning Standards listed below.

Alternative Assessments: Students will have the opportunity to demonstrate their learning by completing chapter 4 Performance Task in student textbook/workbook.

Objectives (Students will be able to...)	Key Concepts (Students will know...)	Suggested Assessments	Standards (NJSLS)
Understand place value of decimals (tenths, hundredths, thousandths) Compare and order numbers containing decimals Round decimals to any place value	Read and write thousandths in decimal and fractional form Show thousandths on a number line Determine the value of a digit in a number to the thousandths Write a decimal to the thousandths in expanded form, word form, and standard form Compare and order decimals to 3 decimal places	Chapter 4 Let's Explore problem Chapter 4 Math Journal Chapter 4 Thinking Cap and/or Thinking Cap- Enrichment	**5.NBT. A. Understand the place value system** 3. Read, write, and compare decimals to thousandths. a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$. b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons. 4. Use place value understanding to round decimals to any place.

	Round decimals to the nearest hundredth Rewrite three-place decimals as fractions or mixed numbers in simplest form or vice versa Vocabulary: thousandths		***Interdisciplinary Connections:*** **NJSLSA.SL1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.**

Unit 5 Overview

Unit Title: Four Operations of Decimals

Unit Summary: In this unit, students will learn to solve the four operations with decimals. Students will build on their place value knowledge and knowledge of whole number operations. Students will use patterns to help them multiply and divide with decimals. Students will apply multiplication and division with powers of ten to convert between measurement units within a given measurement system. Additionally, students will solve real-world problems involving the four operations of decimals using bar models.

Suggested Pacing: 25 days

Learning Targets

Unit Essential Questions:
- How can decimals be added, subtracted, multiplied, and divided?
- How do we use patterns and place value to help multiply and divide decimals?
- How do we use multiplication and division to convert between units?

Unit Enduring Understandings:
- Apply whole number operations of addition and subtraction to decimals.
- Regroup using place value to add and subtract decimals.
- The same relationship exists between any two adjacent places in the place value system.
- When multiplying decimals, regroup using place value.
- Multiplication and division are inverse operations.

Evidence of Learning

Formative Assessments: A variety of formative assessments will be used throughout the lesson, such as Number Talks, Exploration Activities, Class Discussion, Journal Entries, Independent Practice

Summative Assessments: This unit assessment contains a variety of multiple choice, multiple select, and open ended questions that assess student understanding of the objectives and NJ Student Learning Standards listed below.

Alternative Assessments: Students will have the opportunity to demonstrate their learning by completing chapter 9 Performance Task in student textbook/workbook.

Objectives (Students will be able to...)	Key Concepts (Students will know...)	Suggested Assessments	Standards (NJSLS)
Perform the four operations with decimals	Add decimals with and without regrouping	Chapter 5 Math Sharing problems	**5.NBTA. Understand the place value system.** 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.
Convert between measurement units	Subtract decimals with and without regrouping	Chapter 5 Math Journal	
Solve real-world problems involving decimals	Multiply decimals up to 2 decimal places by 1-digit whole numbers with and without regrouping	Chapter 5 Thinking Cap and/or Thinking Cap- Enrichment	**5.NBT.B. Perform operations with multi-digit whole numbers and with decimals to hundredths**
	Multiply decimals up to 3	STEAM Project Work: Work for a Cause	

	decimal places by 10 Multiply decimals up to 3 decimal places by tens Multiply decimals up to 3 decimal places by 100 and 1,000 Multiply decimals up to 3 decimal places by by hundreds and thousands Multiply decimals by powers of 10 Divide decimals by a whole number with and without regrouping Divide decimals by 10 Divide decimals by tens Divide decimals by 100 and 1,000 Divide decimals by hundreds and thousands Estimate sums and differences by rounding to the nearest whole number Estimate products and quotients by rounding the decimal Convert a measurement from a smaller unit to larger unit Convert a measurement from a larger unit to a smaller unit Solve real-world problems with decimals		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. **5.MD.A. Convert like measurement units within a given measurement system.** 1. Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems. ***Interdisciplinary Connections:*** **NJSLSA.L.5.4.B. Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., photograph, photosynthesis).** ***Career Readiness, Life Literacies, and Key Skills:*** **9.1.5.FP.3: Analyze how spending choices and decision-making can result in positive or negative consequences.** **9.1.5.PB.2: Describe choices consumers have with money.** **9.4.5.IML.2: Create a visual representation to organize information about a problem or issue.**

Unit 6 Overview

Unit Title: Volume

Unit Summary:
In this unit, students will learn the concept of the volume of a solid as the amount of space it occupies. Students will build solids using unit cubes and identify the volume of the solid. They will learn a variety of strategies to figure out the volume of various solids. Students will use a formula to find the volume of various solids and composite solids. Additionally, students will compare volumes of solids and real-world objects. They will finally apply what they have learned to solve real-world problems involving volume.

Suggested Pacing: 25 days

Learning Targets

Unit Essential Questions:
- How do you find the volume of a solid made of unit cubes?
- How do you find the volume of a solid using a formula?
- How do you find the volume of a composite solid?

Unit Enduring Understandings:
- Determine the number of unit cubes in a solid to find its volume.
- Use the formula lxwxh to find the volume of a solid.
- The volume of a composite solid is additive of its parts.

Evidence of Learning

Formative Assessments: A variety of formative assessments will be used throughout the lesson, such as Number Talks, Exploration Activities, Class Discussion, Journal Entries, Independent Practice

Summative Assessments: This unit assessment contains a variety of multiple choice, multiple select, and open ended questions that assess student understanding of the objectives and NJ Student Learning Standards listed below.

Alternative Assessments: Students will have the opportunity to demonstrate their learning by completing the chapter 6 Performance Task in student textbook/workbook.

Objectives (Students will be able to…)	Key Concepts (Students will know…)	Suggested Assessments	Standards (NJSLS)
Understand the concept of volume measurement Apply various strategies to find the volume of solids Solve real world problems involving volume	Use unit cubes to build solids and determine the number of unit cubes in a solid Find the volume of a solid in cubic units Find and compare the volumes of solids in cubic units Find the volume of a rectangular prism Convert volumes of liquids	Chapter 6 Math Sharing problems Chapter 6 Math Journal Chapter 6 Thinking Cap and/or Thinking Cap- Enrichment	**5.MD.C. Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.** 3. Recognize volume as an attribute of solid figures and understand concepts of volume measurement. a. A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume. b. A solid figure which can be packed without gaps or overlaps using n unit

	Use a formula to find the volume of a rectangular prism Solve multi-step word problems on volume of rectangular prisms and liquids Find the volume of a rectangular prism composed of two rectangular prisms Solve real-world problems on volume of composite solids		cubes is said to have a volume of n cubic units. 4. Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and non-standard units. 5. Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication. b. Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems. c. Recognize volume as additive. Find volumes of solid figures composed of two nonoverlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.

Unit 7 Overview

Unit Title: Line Plots and the Coordinate Plane

Unit Summary:
In this unit, students will apply prior knowledge of operations with fractions and creating graphs to make and interpret line plots. They will understand how to interpret and compare data using a line plot and understand the uses of this graph. Students will use their understanding of whole numbers, fractions, and decimals to analyze the data and solve real-world problems. Additionally, students will understand the coordinate plane and its uses. Students will create line graphs using ordered pairs and a coordinate grid. They will be able to analyze this data and solve real-world problems. Students will also learn new vocabulary on line plots and coordinate planes in this unit.

Suggested Pacing: 15 days

Learning Targets

Unit Essential Questions:
- What types of data can be graphed on a line plot with a fractional scale?
- How are the coordinate points related to patterns?
- Why would one graph on a coordinate plane?

Unit Enduring Understandings:
- Data entries do not have to be only whole numbers.
- The scale on a line plot must be evenly spaced.
- Patterns can be put together to generate new patterns.
- The first number in an ordered pair indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis.

Evidence of Learning

Formative Assessments: A variety of formative assessments will be used throughout the lesson, such as Number Talks, Exploration Activities, Class Discussion, Journal Entries, Independent Practice

Summative Assessments: This unit assessment contains a variety of multiple choice, multiple select, and open ended questions that assess student understanding of the objectives and NJ Student Learning Standards listed below.

Alternative Assessments: Students will have the opportunity to demonstrate their learning by completing the chapter 7 Performance Task in student textbook/workbook.

Objectives (Students will be able to...)	Key Concepts (Students will know...)	Suggested Assessments	Standards (NJSLS)
Create and interpret data in line plots containing fractions of a unit Identify number patterns and rules to create ordered pairs Understand the coordinate	Make and interpret line plots with fractional data Read and plot points on the coordinate plane Use ordered pairs to draw line graphs	Chapter 7 Math Sharing problems Chapter 7 Math Journal Chapter 7 Thinking Cap and/or Thinking Cap- Enrichment	**5.OA.B. Analyze patterns and relationships.** 3. Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from

plane and how points in the first quadrant relate to mathematical and real world problems	Identify and extend number patterns Generate patterns and draw graphs		the two patterns, and graph the ordered pairs on a coordinate plane. For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so. **5.MD.B. Represent and interpret data.** 2. Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally. **5.G.A. Graph points on the coordinate plane to solve real-world and mathematical problems.** 1. Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate). 2. Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. ***Computer Science*** 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 data. 9.4.5.IML.3: Represent the same data in multiple visual formats in order to tell a story about the data 9.4.5.IML.2: Create a visual representation to organize information about a problem or issue.

Unit 8 Overview

Unit Title: Polygons

Unit Summary: In this unit, students will deepen their understanding of two dimensional figures and their attributes. They will make generalizations and classify 2D figures based on their properties. Students will understand how 2D figures are related using a hierarchy of figures. Students will learn and understand new vocabulary regarding attributes of polygons.

Suggested Pacing: 10 days

Learning Targets

Unit Essential Questions:
- What are the attributes of 2-dimensional figures?
- How are two-dimensional figures related?

Unit Enduring Understandings:
- Attributes of a category of two‑dimensional figures also belong to all subcategories of that category.

Evidence of Learning

Formative Assessments: A variety of formative assessments will be used throughout the lesson, such as Number Talks, Exploration Activities, Class Discussion, Journal Entries, Independent Practice

Summative Assessments: This unit assessment contains a variety of multiple choice, multiple select, and open ended questions that assess student understanding of the objectives and NJ Student Learning Standards listed below.

Alternative Assessments: Students will have the opportunity to demonstrate their learning by completing the chapter 8 Performance Task in student textbook/workbook.

Objectives (Students will be able to...)	Key Concepts (Students will know...)	Suggested Assessments	Standards (NJSLS)
Classify 2-dimensional figures based on their properties	Identify triangles by their sides and angles Classify polygons using a hierarchy	Chapter 8 Math Sharing problems Chapter 8 Math Journal Chapter 8 Thinking Cap and/or Thinking Cap-Enrichment STEAM Project Work: Cubism Quadrilateral Design Project	**5.G.B. Classify two-dimensional figures into categories based on their properties.** 3. Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles. 4. Classify two-dimensional figures in a hierarchy based on properties. ***Interdisciplinary Connections:*** NJSLSA.SL1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively. ***Career Readiness, Life Literacies, and Key Skills:*** 9.4.5.IML.2: Create a visual representation to organize information about a problem or issue.