

**Northfield Community School**  
**MATHEMATICS CURRICULUM FRAMEWORK**  
 BOE APPROVED AUGUST 2024

**GRADE : 5**

**PACING**

<b>PACING</b>	MP 1	MP 2	MP 3	MP 4
	Topic: Understand Place Value, Write and Interpret Numerical Expression, Add and Subtract Decimals to Hundredths	Topic: Fluently Multiply Multi-Digit Whole Numbers, Use Models and Strategies to Multiply Decimals, Use Models and Strategies to Divide Whole Numbers	Topic: Use Models and Strategies to Divide Decimals Use Equivalent Fractions to Add and Subtract Fractions, Apply Understanding of Multiplication to Multiply Fractions, Apply Understanding of Division to Divide Fractions	Topic: Convert Measurement, Represent and Interpret Data, Graph Points on the Coordinate Plane, Algebra: Analyze Patterns and Relationships, Understand Volume Concepts, Geometric Measurement: Classify Two-Dimensional Figures
<b>NJSLA Domain</b>	5.NBT.A.1, 5.NBT.A.2, 5.NBT.A.3, 5.NBT.A.3a, 5.NBT.A.3b, 5.NBT.A.4, 5.OA.A.1, 5.OA.A.2, 5.NBT.B.7	5.NBT.B.5, 5.NBT.B.7, 5.NBT.A.2, 5.NBT.B.6	5.NBT.B.7, 5.NF.A.2, 5.NF.A.1, 5.NF.B.4a, 5.NF.B.4b, 5.NF.B.5a, 5.NF.B.5b, 5.NF.B.6, 5.NF.B.3, 5.NF.B.7, 5.NF.B.7a, 5.NF.B.7b, 5.NF.B.7c	5.MD.A.1, 5.NBT.A.2, 5.NBT.B.5, 5.NBT.B.6, 5.MD.B.2, 5.NF.A.2, 5.G.A.1, 5.G.A.2, 5.OA.B.3, 5.G.A.2, 5.MD.C.3, 5.MD.C.3a, 5.MD.C.3b, 5.MD.C.4, 5.MD.C.5, 5.MD.C.5a, 5.MD.C.5b, 5.MD.C.5c, 5.G.B.3, 5.G.B.4
<b>District Assessments</b>	Big Ideas Chapters 1-3 Tests	Big Ideas Chapters 4-6 Tests	Big Ideas Chapters 7-10 Tests	Big Ideas Chapters 11-16 Tests

	PreCourse Test Course Benchmark 1 Test	Course Benchmark 2 Test		PostCourse Test Course Benchmark 3 Test
<b>NJSLS Technology</b>	8.1.A, 8.1.B, 8.1.C, 8.1.D	8.1.A, 8.1.B, 8.1.C, 8.1.D	8.1.A, 8.1.B, 8.1.C, 8.1.D	8.1.A, 8.1.B, 8.1.C, 8.1.D
<b>NJSLS Career Readiness Practices</b>	9.1.5.CRP.1, 9.1.5.CRP.2, 9.1.5.CRP.4, 9.1.5.CRP.6, 9.1.5.CRP.8, 9.1.5.CRP.12	9.1.5.CRP.1, 9.1.5.CRP.2, 9.1.5.CRP.4, 9.1.5.CRP.6, 9.1.5.CRP.8, 9.1.5.CRP.12	9.1.5.CRP.1, 9.1.5.CRP.2, 9.1.5.CRP.4, 9.1.5.CRP.6, 9.1.5.CRP.8, 9.1.5.CRP.12	9.1.5.CRP.1, 9.1.5.CRP.2, 9.1.5.CRP.4, 9.1.5.CRP.6, 9.1.5.CRP.8, 9.1.5.CRP.12
<b>9.1 Personal Financial Literacy Standards</b>	9.1.5.FI.1, 9.1.5.FI.2, 9.1.5.FI.3,9.1.5.FI.4, 9.1.5.FI.5	9.1.5.FI.1, 9.1.5.FI.2, 9.1.5.FI.3,9.1.5.FI.4, 9.1.5.FI.5	9.1.5.FI.1, 9.1.5.FI.2, 9.1.5.FI.3,9.1.5.FI.4, 9.1.5.FI.5	9.1.5.FI.1, 9.1.5.FI.2, 9.1.5.FI.3,9.1.5.FI.4, 9.1.5.FI.5

**Mathematics in Grade 5, instructional time should focus on three critical areas:**

- (1) developing fluency with addition and subtraction of fractions, and developing understanding of the multiplication of fractions and of division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions);
- (2) 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; and
- (3) developing understanding of volume.

(1) Students apply their understanding of fractions and fraction models to represent the addition and subtraction of fractions with unlike denominators as equivalent calculations with like denominators. They develop fluency in calculating sums and differences of fractions, and make reasonable estimates of them. Students also use the meaning of fractions, of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for multiplying and dividing fractions make sense. (Note: this is limited to the case of dividing unit fractions by whole numbers and whole numbers by unit fractions.)

(2) Students develop understanding of why division procedures work based on the meaning of base-ten numerals and properties of operations. They finalize fluency with multi-digit addition, subtraction, multiplication, and division. They apply their understandings of models for decimals, decimal notation, and properties of operations to add and subtract decimals to hundredths. They develop fluency in these computations, and make reasonable estimates of their results. Students use the relationship between decimals and fractions, as well as the relationship between finite decimals and whole numbers (i.e., a finite decimal multiplied by an appropriate power of 10 is a whole number), to understand and explain why the procedures for multiplying and dividing finite decimals make sense. They compute products and quotients of decimals to hundredths efficiently and accurately.

(3) Students recognize volume as an attribute of three-dimensional space. They understand that volume can be measured by finding the total number of same-size units of volume required to fill the space without gaps or overlaps. They understand that a 1-unit by 1-unit by 1-unit cube is the standard unit for measuring volume. They select appropriate units, strategies, and tools for solving problems that involve estimating and measuring volume. They decompose three-dimensional shapes and find volumes of right rectangular prisms by viewing them as decomposed into layers of arrays of cubes. They measure necessary attributes of shapes in order to determine volumes to solve real world and mathematical problems.

### **Grade 5 Overview:**

#### Operations and Algebraic Thinking

- Write and interpret numerical expressions.
- Analyze patterns and relationships.

#### Number and Operations in Base Ten

- Understand the place value system.
- Perform operations with multi-digit whole numbers and with decimals to hundredths.

#### Number and Operations—Fractions

- Use equivalent fractions as a strategy to add and subtract fractions.
- Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

#### Measurement and Data

- Convert like measurement units within a given measurement system.
- Represent and interpret data.

- Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

## Geometry

- Graph points on the coordinate plane to solve real-world and mathematical problems.
- Classify two-dimensional figures into categories based on their properties.

## Mathematical Practices:

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

## **Social Emotional Learning (SEL) in MATHEMATICS:**

Provide students with opportunities to express themselves through discussions that connect to each topic and allow them to explore their feelings about math. Thinking deeply about each topic will help students apply problem solving and critical thinking strategies that will help them reflect on their work and overall performance as well as confidence in mathematics.

- What parts of math make you feel successful?
- What can we learn from our mistakes?
- What self-talk can you use to help you persevere?
- What are positive ways to respond when math starts to feel challenging?
- What can friends say to help us feel better and more successful in math?
- What can we learn from our mistakes in math?
- How can you be a good group member?
- How will you help yourself get “unstuck?”
- Where or when can you use today’s math lesson when you are not in school?

- How do we respond if we don't agree with someone's answer or if we know the answer is incorrect?
- How do we feel about solving problems in a different way when asked?
- Did everyone get a fair chance to talk and/or use the manipulatives?

<b>UNIT 1</b>		
<b>Unit Summary</b>	<b>NJSLS Standards</b>	<b>Essential Questions</b>
Understand Place Value, Understand How to Write and Interpret Numerical Expression, Understand How to Add and Subtract Decimals to Hundredths	5.NBT.A.1, 5.NBT.A.2, 5.NBT.A.3, 5.NBT.A.3a, 5.NBT.A.3b, 5.NBT.A.4, 5.OA.A.1, 5.OA.A.2, 5.NBT.B.7	What are some relationships and patterns within the place value System? How is the order in which you evaluate an expression determined? How do parentheses, brackets and braces affect the way you simplify an expression? How can expressions be compared without simplifying? How can we use what we know about adding and subtracting whole numbers to add and subtract decimals?
<p><b>Learning Goals:</b> Define the value of numbers. Explain how to use symbols to compare two numbers. Compare the values of two identical digits in a number. Read and write multi-digit numbers in multiple forms. Identify number properties. Explain number properties to write equations. Interpret an expression. Evaluate a numerical expression. Use rounding. Use place value to line up the numbers in a problem. Solve a problem using decimals. Estimate to check my answer.</p>		
<p><b>Fluency Expectations:</b> Understand the place value system. Write and interpret numerical expressions. Analyze patterns and relationships. Perform operations with multi-digit whole numbers and with decimals to hundredths.</p>		
<p><b>Modifications and Accommodations (ELL, SE, BSI, G&amp;T, 504):</b> Reteach and Enrichment activities from Big Ideas Math. Small group instruction. Use of manipulatives, visuals, and other teaching tools. Flexible grouping centers. Check for comprehension and understanding. Repeating, clarifying or rewording directions. Teacher modeling of what is expected and necessary steps to complete tasks. Provide students with open ended questions that stimulate higher order thinking. Tiered assignments.</p>		
<p><b>Vocabulary:</b> Vocabulary Practice, Vocabulary Cards</p>		

**Resources:**

Big Ideas: Modeling Real Life  
Manipulatives

**UNIT 2**

<b>Unit Summary</b>	<b>NJSLS Standards</b>	<b>Essential Questions</b>
Understand How to Fluently Multiply Multi-Digit Whole Numbers, Understand How to Use Models and Strategies to Multiply Decimals, Understand How to Use Models and Strategies to Divide Whole Numbers	5.NBT.B.5, 5.NBT.B.7, 5.NBT.A.2, 5.NBT.B.6	What are the standard procedures for finding products of multi-digit numbers? How can we use what we know about multiplying whole numbers to multiply decimals? How can you use place value to divide?

**Learning Goals:** Identify a pattern to find a product. Use rounding to estimate a product. Represent a product. Model different types of products with multiplication. Identify a pattern to determine the location of a decimal. Explain different ways to estimate a decimal. Solve a problem using decimals. Model different types of decimals. Identify a whole number. Describe division patterns. Solve a problem using division. Model division of numbers.

**Fluency Expectations:** Perform operations with multi-digit whole numbers and with decimals to hundredths.

**Modifications and Accommodations (ELL, SE, BSI, G&T, 504):** Reteach and Enrichment activities from Big Ideas Math. Small group instruction. Use of manipulatives, visuals, and other teaching tools. Flexible grouping centers. Check for comprehension and understanding. Repeating, clarifying or rewording directions. Teacher modeling of what is expected and necessary steps to complete tasks. Provide students with open ended questions that stimulate higher order thinking. Tiered assignments.

**Vocabulary:** Vocabulary Practice, Vocabulary Cards

**Resources:**

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### UNIT 3

Unit Summary	NJSL Standards	Essential Questions
Understand How to Use Models and Strategies to Divide Decimals, Understand How to Use Equivalent Fractions to Add and Subtract Fractions, Apply Understanding of Multiplication to Multiply Fractions, Apply Understanding of Division to Divide Fractions	5.NBT.B.7, 5.NF.A.2, 5.NF.A.1, 5.NF.B.4a, 5.NF.B.4b, 5.NF.B.5a, 5.NF.B.5b, 5.NF.B.6, 5.NF.B.3, 5.NF.B.7, 5.NF.B.7a, 5.NF.B.7b, 5.NF.B.7c	How can you use place value to divide? How do we use equivalent fractions to add and subtract fractions? How can I apply and extend my previous understanding of multiplication to multiply fractions? How can you use place value to divide?

**Learning Goals:** Identify a decimal. Write a decimal equation. Solve a problem using decimals. Model different types of decimals as equations Find the factors of a number. Write equivalent fractions. Add and subtract fractions. Solve a problem using fractions Identify a fraction as a sum of unit fractions. Write a fraction as a sum of unit fractions. Multiply fractions. Solve a problem using fractions. identify fractions as division. Explain mixed numbers as quotients. Divide fractions. Model different types of fractions as equations.

**Fluency Expectations:** Use equivalent fractions as a strategy to add and subtract fractions. Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

**Modifications and Accommodations (ELL, SE, BSI, G&T, 504):** Reteach and Enrichment activities from Big Ideas Math. Small group instruction. Use of manipulatives, visuals, and other teaching tools. Flexible grouping centers. Check for comprehension and understanding. Repeating, clarifying or rewording directions. Teacher modeling of what is expected and necessary steps to complete tasks. Provide students with open ended questions that stimulate higher order thinking. Tiered assignments.

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## UNIT 4

Unit Summary	NJSL Standards	Essential Questions
<p>Understand How to Convert Measurement, Understand How to Represent and Interpret Data, Understand How to Graph Points on the Coordinate Plane, Understand How to Analyze Patterns and Relationships, Understand Volume Concepts, Understand How to Classify Two-Dimensional Figures</p>	<p>5.MD.A.1, 5.NBT.A.2, 5.NBT.B.5, 5.NBT.B.6, 5.MD.B.2, 5.NF.A.2, 5.G.A.1, 5.G.A.2, 5.OA.B.3, 5.G.A.2, 5.MD.C.3, 5.MD.C.3a, 5.MD.C.3b, 5.MD.C.4, 5.MD.C.5, 5.MD.C.5a, 5.MD.C.5b, 5.MD.C.5c, 5.G.B.3, 5.G.B.4</p>	<p>How do we convert measurements within the metric system? How do we convert measurements within the customary system? How can we create a line plot using fractional units? How can we use a line plot to solve problems? What is the purpose of a coordinate plate? How do you plot a point in the coordinate plane?            How can you use a graph to interpret a real-life situation? How can we show relationships in a coordinate plane? How can patterns help us solve problems? How can graphing in a coordinate plane help us identify relationships between patterns?            What is the meaning of volume of a solid? How can the volume of a rectangular prism be found? How can we describe, classify, and name different shapes? How can angles be measured and classified? How do different quadrilaterals relate to each other?</p>

**Learning Goals:** Identify length in metric units. Describe mass and capacity in metric units. Solve a problem using different ways to measure items. Compare the values of two different forms of measurement Identify patterns. Plot points on a coordinate plane. Analyze line graphs. Interpret relationships. Define volume. Describe volume. Compare volumes. Apply the volume formula. Define two-dimensional shapes. Explain different shapes and their features. Compare shapes. Draw shapes.

**Fluency Expectations:** Convert like measurement units within a given measurement system. Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition. Understand and analyze data visualizations. Represent and



interpret data. Graph points on the coordinate plane to solve real-world and mathematical problems. Classify two-dimensional figures into categories based on their properties.

**Modifications and Accommodations (ELL, SE, BSI, G&T, 504):** Reteach and Enrichment activities from Big Ideas Math. Small group instruction. Use of manipulatives, visuals, and other teaching tools. Flexible grouping centers. Check for comprehension and understanding. Repeating, clarifying or rewording directions. Teacher modeling of what is expected and necessary steps to complete tasks. Provide students with open ended questions that stimulate higher order thinking. Tiered assignments.

**Vocabulary:** Vocabulary Practice, Vocabulary Cards

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