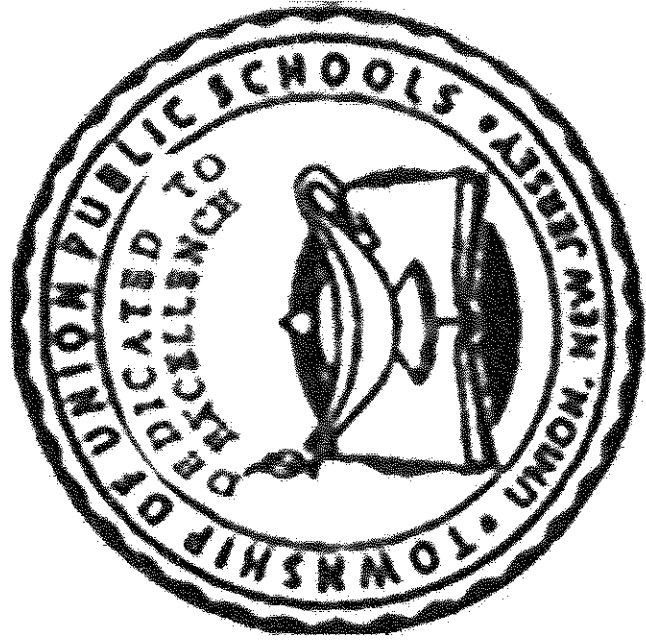


TOWNSHIP OF UNION PUBLIC SCHOOLS



Grade 5 Mathematics – Curricular Frameworks Units 1-2

Curriculum Guide

August 2017

Mission Statement

The mission of the Township of Union Public Schools is to build on the foundations of honesty, excellence, integrity, strong family, and community partnerships. We promote a supportive learning environment where every student is challenged, inspired, empowered, and respected as diverse learners. Through cultivation of students' intellectual curiosity, skills and knowledge, our students can achieve academically and socially, and contribute as responsible and productive citizens of our global community.

Philosophy Statement

The Township of Union Public School District, as a societal agency, reflects democratic ideals and concepts through its educational practices. It is the belief of the Board of Education that a primary function of the Township of Union Public School System is to formulate a learning climate conducive to the needs of all students in general, providing therein for individual differences. The school operates as a partner with the home and community.

Statement of District Goals

- Develop reading, writing, speaking, listening, and mathematical skills.
- Develop a pride in work and a feeling of self-worth, self-reliance, and self-discipline.
- Acquire and use the skills and habits involved in critical and constructive thinking.
- Develop a code of behavior based on moral and ethical principles.
- Work with others cooperatively.
- Acquire a knowledge and appreciation of the historical record of human achievement and failures and current societal issues.
- Acquire a knowledge and understanding of the physical and biological sciences.
- Participate effectively and efficiently in economic life and the development of skills to enter a specific field of work.
- Appreciate and understand literature, art, music, and other cultural activities.
- Develop an understanding of the historical and cultural heritage.
- Develop a concern for the proper use and/or preservation of natural resources.
- Develop basic skills in sports and other forms of recreation.

Pacing Guide

Grade 5 Mathematics

GO Math Resources that Correspond to Standards

Unit 1: Understanding the Place Value System

- Write and interpret numerical expressions
- Understand the place value system
- Perform operations with multi-digit whole numbers and with decimals to hundredths

Unit 1:

By the end of:

5.OA.A.1 : 1.3 ; 1.10 ; 1.11 ; 1.12

September

5.OA.A.2 : 1.10

September

5.NBT.A.1 : 1.1 ; 1.2 ; 1.3 ; 3.1

September

5.NBT.A.2 : 1.4 ; 1.5

October

5.NBT.B5 : 1.6 ; 1.7

October

5.NBT.B6 : 1.8 ; 1.9 ; 2.2 ; 2.4 ; 2.5 ; 2.6 ; 2.9

October

5.NBT.A.3 : 3.2 ; 3.3 ;

Mid November

5.NBT.A.4 : 3.4

Mid November

By the end of Marking Period 1, students should master these standards.

** These are additional resources to utilize while teaching the standards **

Unit 2: Understanding Volume and Operations on Fractions

- Understand concepts of volume
- Perform operations with multi-digit whole numbers and with decimals to hundredths
- Use equivalent fractions as a strategy to add and subtract fractions
- Apply and extend previous understandings of multiplication and division

Unit 2:

By the end of:

5.MD.C.3 : 11.4 ; 11.5 ; 11.6

November

5.MD.C.4 : 11.6 ; 11.7	November
5.MD.C.5 : 11.8 ; 11.9 ; 11.10 ; 11.11	December
5.NBT.B.5 : 7.4 ; 7.5 ; 7.6 ; 7.8 ; 7.9	December
5.NF.A.1 : 6.1 ; 6.5 ; 6.6 ; 6.7 ; 6.8	January
5.NF.A.2 : 6.2 ; 6.3 ; 6.9	January
5.NF.B.3 : 8.3	January
5.NF.B.4 : 7.1 ; 7.7	January

By the end of Marking Period 2, students should master these standards.

** These are additional resources to utilize while teaching the standards **

Overview	Standards for Mathematical Content	Unit Focus	Standards for Mathematical Practice
<p>Unit 1</p> <p>Understanding the Place Value System</p>	<ul style="list-style-type: none"> ☉ 5.OA.A.1 ☉ 5.OA.A.2 ■ 5.NBT.A.1 ■ 5.NBT.A.2* ■ 5.NBT.B.5* ■ 5.NBT.B.6 ■ 5.NBT.A.3 ■ 5.NBT.A.4 	<ul style="list-style-type: none"> • Write and interpret numerical expressions • Understand the place value system • Perform operations with multi-digit whole numbers and with decimals to hundredths 	<p>MP.1 Make sense of problems and persevere in solving them.</p>
<p>Unit 1:</p> <p>Suggested Open Educational Resources</p>	<ul style="list-style-type: none"> 5.OA.A.1 <u>Using Operations and Parentheses</u> 5.OA.A.1 <u>Watch out for Parentheses 1</u> 5.NBT.A.1 <u>Which number is it?</u> 5.NBT.A.1 <u>Millions and Billions of People</u> 5.NBT.A.3 <u>Placing Thousandths on the Number Line</u> 5.NBT.A.4 <u>Rounding to Tenths and Hundredths</u> 5.NBT.B.5 <u>Elmer's Multiplication Error</u> 		<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments and critique the reasoning of others.</p>
<p>Unit 2</p> <p>Understanding Volume and Operations on</p>	<ul style="list-style-type: none"> ■ 5.MD.C.3 ■ 5.MD.C.4 ■ 5.MD.C.5 ■ 5.NBT.B.5* ■ 5.NF.A.1 ■ 5.NF.A.2 ■ 5.NF.B.3 ■ 5.NF.B.4 	<ul style="list-style-type: none"> • Understand concepts of volume • Perform operations with multi-digit whole numbers and with decimals to hundredths • Use equivalent fractions as a strategy to add and subtract fractions 	<p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p>

Overview	Standards for Mathematical Content	Unit Focus	Standards for Mathematical Practice
Fractions		<ul style="list-style-type: none"> Apply and extend previous understandings of multiplication and division 	<p>MP.6 Attend to precision.</p>
Unit 2: <i>Suggested Open Educational Resources</i>	<p><u>5.MD.C.5 Breaking Apart Composite Solids</u></p> <p><u>5.MD.C.5a using Volume to Understand the Associative Property of Multiplication</u></p> <p><u>5.MD.C.5b Cari's Aquarium</u></p> <p><u>5.MD.C Box of Clay</u></p> <p><u>5.NF.A.1 Making S'Mores</u></p> <p><u>5.NF.A.2 Do These Add Up?</u></p> <p><u>5.NF.A Measuring Cups</u></p> <p><u>5.NF.B.3 How Much Pie?</u></p> <p><u>5.NF.B.4b Chavone's Bathroom Tiles</u></p>		<p>MP.7 Look for and make use of structure.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>

Overview	Standards for Mathematical Content	Unit Focus	Standards for Mathematical Practice
<p><u>Unit 3</u></p> <p>More Operations on Fractions</p>	<ul style="list-style-type: none"> ■ 5.NF.B.4b ■ 5.NF.B.5 ■ 5.NF.B.6 ■ 5.NF.B.7* ■ 5.NBT.A.2* ■ 5.NBT.B.7* □ 5.MD.A.1 	<ul style="list-style-type: none"> • Apply and extend previous understandings of multiplication and division • Understand the place value system • Perform operations with multi-digit whole numbers and with decimals to hundredths • Convert like measurement units within a given measurement system 	<p>MP.1 Make sense of problems and persevere in solving them.</p>
<p><u>Unit 3:</u></p> <p>Suggested Open Educational Resources</p>	<ul style="list-style-type: none"> <u>5.NF.B.4b New Park</u> <u>5.NF.B.5 Comparing Heights of Buildings</u> <u>5.NF.B.5 Grass Seedlings</u> <u>5.NF.B.5b Mrs. Gray's Homework Assignment</u> <u>5.NF.B.6 To Multiply or not to multiply?</u> <u>5.NF.B.7 Banana Pudding</u> <u>5.NBT.A.2 Multiplying Decimals by 10</u> <u>5.NBT.A.2 Marta's Multiplication Error</u> <u>5.NBT.B.7 The Value of Education</u> <u>5.MD.A.1, 5.NF.B.3 Converting Fractions of a Unit into a Smaller Unit</u> 		<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments and critique the reasoning of others.</p> <p>MP.4 Model with mathematics.</p>

Overview	Standards for Mathematical Content	Unit Focus	Standards for Mathematical Practice
<p>Unit 4</p> <p>Coordinate Geometry and Classifying Figures</p>	<ul style="list-style-type: none"> ⊙ 5.G.A.1 ⊙ 5.G.A.2 ⊙ 5.OA.B.3 ⊙ 5.G.B.3 ⊙ 5.G.B.4 ▣ 5.MD.B.2 ▣ 5.NBT.B.5* ▣ 5.NBT.B.7* ▣ 5.NF.B.7* 	<ul style="list-style-type: none"> • Graph points on the coordinate plane to solve real-world and mathematical problems • Analyze patterns and relationships • Classify two dimensional figures into categories based on their properties • Represent and interpret data • Perform operations with multi-digit whole numbers and with decimals to hundredths • Apply and extend previous understanding of multiplication and division 	<p>MP.5 Use appropriate tools strategically.</p> <p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>
<p>Unit 4:</p> <p><i>Suggested Open Educational Resources</i></p>	<p>5.G.A.1 Battle Ship Using Grid Paper</p> <p>5.G.A.2 Meerkat Coordinate Plane Task</p> <p>5.OA.B.3 Sidewalk Patterns</p> <p>5.G.B.3 Always, Sometimes, Never</p> <p>5.G.B.4 What is a Trapezoid? (Part 2)</p> <p>5.MD.B.2 5.NF.A.1 Fractions on a Line Plot</p>		

Overview	Standards for Mathematical Content	Unit Focus	Standards for Mathematical Practice
	5.NBT.B.7, 5.NF.B.3 5.NF.B.7c	Salad Dressing	

Unit 1 Grade 5			
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Concept(s)
© 5.OA.A.1. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.	MP.1 Make sense of problems and persevere in solving them. MP.5 Use appropriate tools strategically. MP.8 Look for and express regularity in repeated reasoning.	Concept(s): <ul style="list-style-type: none"> Standard convention for performing operations (Order of operations, including grouping symbols) Students are able to: <ul style="list-style-type: none"> evaluate numerical expressions that include grouping symbols (parentheses, brackets or braces). evaluate numerical expressions that include nested grouping symbols (for example, $3 \times [5 + (7 - 3)]$). 	Learning Goal 1: Evaluate numerical expressions that contain parentheses, brackets and braces.
© 5.OA.A.2. Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. <i>For example, express the calculation "add 8 and 7, then multiply by 2" as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large</i>	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.7 Look for and make use of	Concept(s): <ul style="list-style-type: none"> Order of operations, including grouping symbols. Students are able to: <ul style="list-style-type: none"> write a simple numerical expression when given a verbal description. interpret the quantitative relationships in numerical expressions without 	

Unit 1 Grade 5

Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills
<p>as $18932 + 921$, without having to calculate the indicated sum or product.</p>	<p>structure. MP.8 Look for and express regularity in repeated reasoning</p>	<p>evaluating (simplifying) the expression.</p> <p>Learning Goal 2: Write numerical expressions when given a verbal description or word problem; interpret numerical expressions without evaluating them.</p>
<p>5.NBT.A.1. Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.</p>	<p>MP.2 Reason abstractly and quantitatively. MP.6 Attend to precision. MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> Quantitative relationships exist between the digits in place value positions of a multi-digit number. <p>Students are able to:</p> <ul style="list-style-type: none"> explain that a digit in one place represents 1/10 of what it would represent in the place to its left. explain that a digit in one place represents ten times what it would represent in the place to its right. <p>Learning Goal 3: Explain that a digit in one place represents 1/10 of what it would represent in the place to its left and ten times what it would represent in the place to its right.</p>
<p>5.NBT.A.2. Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.</p>	<p>MP.2 Reason abstractly and quantitatively. MP.6 Attend to precision. MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> Scientific notation and exponents <p>Students are able to:</p> <ul style="list-style-type: none"> explain patterns in the number of zeros of the product when multiplying a whole number by powers of 10. write powers of 10 using whole-number exponents.

Unit 1 Grade 5

Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills
<p>■ 5.NBT.B.5. Fluently multiply multi-digit whole numbers using the standard algorithm. *(benchmark)</p>	<p>MP.2 Reason abstractly and quantitatively. MP.6 Attend to precision. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Learning Goal 4: Explain patterns in the number of zeros in the product when a whole number is multiplied by a power of 10; represent powers of 10 using whole-number exponents.</p> <p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> multiply a whole number of up to a four digits by a whole number of up to two digits using the standard algorithm with accuracy and efficiency. <p>Learning Goal 5: Use the standard algorithm to multiply a whole number of up to a four digits by a whole number of up to two digits.</p>
<p>■ 5.NBT.B.6. Find whole-number quotients of whole numbers with up to four-digit divisors 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.</p>	<p>MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and critique the reasoning of others. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.7 Look for and make use of structure.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> divide to find whole-number quotients of whole numbers with up to four-digit divisors and two-digit divisors using strategies based on place value, properties of operations, and the relationship between multiplication and division. represent these operations with equations, rectangular arrays, and area models. explain the calculation by referring to the model (equation, array, or area model). <p>Learning Goal 6: Calculate whole number quotients of whole numbers with 4-digit divisors and 2-digit divisors; explain and represent calculations with equations, rectangular arrays, and area models.</p>

Unit 1 Grade 5

Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills
<p>5.NBT.A.3. Read, write, and compare decimals to thousandths.</p> <p>5.NBT.A.3a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$.</p> <p>5.NBT.A.3b. Compare two decimals to thousandths based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.</p>	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p> <p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> Multiple representations of whole numbers <p>Students are able to:</p> <ul style="list-style-type: none"> read and write decimals to thousandths using base-ten numerals. read and write decimals to thousandths using number names. read and write decimals to thousandths using expanded form. compare two decimals to thousandths using $>$, $=$, and $<$ symbols. compare decimals when each is presented in a different form (base-ten numeral, number name, and expanded form). <p>Learning Goal 7: Compare two decimals to thousandths using $>$, $=$, and $<$ for numbers presented as base ten numerals, number names, and/or in expanded form.</p>
<p>5.NBT.A.4. Use place value understanding to round decimals to any place.</p>	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> round decimals to any place value. <p>Learning Goal 8: Round decimals to any place value.</p>

Township of Union Unit 1 Grade 5

District/School Formative Assessment Plan
Formative assessment informs instruction and is ongoing throughout a unit to determine how students are progressing against the standards.

- Self-assessment
- Fluency Fact Quizzes (Multiplication/Division facts)
- Formative tools throughout each chapter based on EACH new skill taught (given BEFORE the mid-chapter checkpoint AND after; also given BEFORE Go Math Chapter Test)
- Reteach/Enrich Supplemental worksheets (to help classify different abilities)
- iReady Teacher Toolbox activities
- Small group direct instruction for struggling learners -One-on-one instruction (as needed)
- Communicating in pairs, small group, or whole group presentations
- Teacher observation
- Student reflections/quick-writes on a particular lesson/skill
- Homework
- Daily Math Journal (Word Problem of the Day)

Inquiry-oriented and exploratory approach

District/School Summative Assessment Plan
Summative assessment is an opportunity for students to demonstrate mastery of the skills taught during a particular unit.

- Chapter Review
- Mid-chapter Checkpoints
- Chapter 1 Test
- Standards Assessment
- Performance Assessment Task
- Digital Personal Math Trainer
- Standards Mastery
- iReady Diagnostic / Growth Check
- Ed Connect / Benchmark Test
- ECR – Extended Constructive Response
- PARCC- style assessments

Focus Mathematical Concepts

Districts should consider listing prerequisites skills. Concepts that include a focus on relationships and representation might be listed as grade level appropriate.

Prerequisite skills: Reading and writing whole numbers up to the hundred thousands place; recall multiplication and division facts up to 12; divide multi-digit number by one digit; read and write decimals to the hundredths place

Common Misconceptions: Students learn multiplication and division facts up to 12, but there is poor recall, therefore drills are needed.

Number Fluency (for grades K-5):

Grade	Required Fluencies
K	Add/Subtract within 5

1	Add/Subtract within 10
2	Add/Subtract within 20
3	Add/Subtract within 1,000 ; Multiplication and Division Facts 0-10
4	Fluently add and subtract multi-digit whole numbers using the standard algorithm; Multiplication and Division Facts 0-12
5	Fluently add and subtract multi-digit whole numbers; Multiplication and Division Facts 0-12; Add and Subtract Benchmark Decimals and Fractions

District/School Tasks	District/School Primary and Supplementary Resources
<p><i>Exemplar tasks or illustrative models could be provided.</i></p> <ul style="list-style-type: none"> - Animated Go Math models - GO Math iTools - Grab and Go Differentiated activities (Go Math) - Using technological resources and other 21st century skills to support and enhance mathematical understanding - Using connections between pictures, oral language, written symbols, manipulative models, and real-world situations 	<p><i>District/school resources and supplementary resources that are texts as well as digital resources used to support the instruction.</i></p> <ul style="list-style-type: none"> - Interactive Student Edition - Personal Math Trainer - Math On the Spot video - Real World Videos - iReady Teacher Toolbox - Illustrative Math https://www.illustrativemathematics.org/ - The Teaching Channel has two hundred math videos for professional development. http://www.theteachingchannel.org

Instructional Best Practices and Exemplars
<p><i>This is a place to capture examples of standards integration and instructional best practices.</i></p> <ul style="list-style-type: none"> - Problem of the Day - Differentiated Instruction based on students' individual needs - Learning Centers - Explicit teacher modeling of how to provide appropriate rationales for math work - Turn and Talk - Peer tutoring - Encouraging and facilitating the sharing of mathematical ideas, discussing mathematics amongst each other, and how to refine and critique each other's ideas and understandings - Making interdisciplinary connections using reading texts

Unit 2 Grade 5

Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills
<p>5.MD.C.3. Recognize volume as an attribute of solid figures and understand concepts of volume measurement.</p> <p>5.MD.C.5a. 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.</p> <p>5.MD.C.5b. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.</p> <p>5.MD.C.4. Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and non-standard units.</p>	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p> <p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> Volume is the amount of space inside a solid (3-dimensional) figure. Cubes with side length of 1 unit, called “a unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume. Solid figures which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units. Volume of a solid can be determined using unit cubes of other dimensions. Students are able to: <ul style="list-style-type: none"> count unit cubes in order to measure the volume of a solid. use unit cubes of centimeters, inches, and/or other units to measure volume. <p>Learning Goal 1: Measure volume by counting the total number cubic units required to fill a figure without gaps or overlaps.</p>
<p>5.MD.C.5. Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.</p> <p>5.MD.C.5a. 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</p>	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments and critique the reasoning of others.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> Volume is additive: volumes of composite solids can be determined by adding the volumes of each solid. Students are able to: <ul style="list-style-type: none"> pack right rectangular prisms with cubes to find volume and multiply side lengths of the right rectangular prism to find volume, showing that they are the same. pack right rectangular prisms with cubes to find volume and multiply height by the area of the base, showing that they are the same. explain how both volume formulas relate to counting the cubes in one layer and multiplying that value by the number of layers (height). write the volume of an object as the product of three whole numbers.

<p>products as volumes, e.g., to represent the associative property of multiplication.</p> <p>5.MD.C.5b. 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.</p> <p>5.MD.C.5c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.</p>	<p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>	<ul style="list-style-type: none"> • solve real-world and mathematical problems using the formulas $V = l \times w \times h$ and $V = B \times h$. • find the volume of a composite solid composed of two right rectangular prisms. <p>Learning Goal 2: Show that the volume of a right rectangular prism found by counting all the unit cubes is the same as the formulas $V = l \times w \times h$ or $V = B \times h$.</p> <p>Learning Goal 3: Apply formulas to solve real world and mathematical problems involving volumes of right rectangular prisms that have whole number edge lengths.</p> <p>Learning Goal 4: Find the volume of a composite solid figure composed of two non-overlapping right rectangular prisms, applying this strategy to solve real-world problems.</p>
<p>5.NBT.B.5. Fluently multiply multi-digit whole numbers using the standard algorithm. *(benchmark)</p>	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments and critique the reasoning of others.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> • multiply multi-digit whole numbers with accuracy and efficiency. <p>Learning Goal 5: Fluently multiply multi-digit whole numbers with accuracy and efficiency.</p>
<p>5.NF.A.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</p>	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.2 Reason abstractly and quantitatively.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> • Equivalent fractions can be used to add and subtract fractions. <p>Students are able to:</p>

<p>difference of fractions with like denominators. For example, $\frac{2}{3} + \frac{5}{4} = \frac{8}{12} + \frac{15}{12} = \frac{23}{12}$ (in general, $\frac{a}{b} + \frac{c}{d} = \frac{ad + bc}{bd}$).</p>	<p>MP.3 Construct viable arguments and critique the reasoning of others. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.</p>	<ul style="list-style-type: none"> produce an equivalent sum (or difference) of fractions with like denominators from the original sum (or difference) of fractions that has unlike denominators. add and subtract fractions with unlike denominators by replacing given fractions with equivalent fractions. <p>Learning Goal 6: Add and subtract fractions (including mixed numbers) with unlike denominators by replacing the given fractions with equivalent fractions having like denominators</p>
<p>5.NF.A.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 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 $\frac{2}{5} + \frac{1}{2} = \frac{3}{7}$, by observing that $\frac{3}{7} < \frac{1}{2}$.</p>	<p>MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and critique the reasoning of others. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> add and subtract fractions, including mixed numbers, with unlike denominators to solve word problems. represent calculations and solutions with visual fraction models and equations estimate answers using benchmark fractions and explain whether the answer is reasonable. estimate answers by reasoning about the size of the fractions and explain whether the answer is reasonable. <p>Learning Goal 7: Solve word problems involving adding or subtracting fractions with unlike denominators, and determine if the answer to the word problem is reasonable, using estimations with benchmark fractions.</p>
<p>5.NF.B.3. Interpret a fraction as division of the numerator by the denominator ($\frac{a}{b} = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or</p>	<p>MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> Fractions represent division. <p>Students are able to:</p> <ul style="list-style-type: none"> represent a fraction as a division statement ($\frac{a}{b} = a \div b$).

<p>mixed numbers, e.g., by using visual fraction models or equations to represent the problem. <i>For example, interpret $3/4$ as the result of dividing 3 by 4, noting that $3/4$ multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size $3/4$. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?</i></p>	<p>MP.3 Construct viable arguments and critique the reasoning of others. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure.</p>	<ul style="list-style-type: none"> • divide whole numbers in order to solve real world problems, representing the quotient as a fraction or a mixed number. • represent word problems involving division of whole numbers using visual fraction models and equations. <p>Learning Goal 8: Interpret a fraction as a division of the numerator by the denominator; solve word problems in which division of whole numbers leads to fractions or mixed numbers as solutions.</p>
<p>5.NF.B.4. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. 5.NF.B.4a. Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. <i>For example, use a visual fraction model to show $(2/3) \times 4 = 8/3$, and create a story context for this equation. Do the same with $(2/3) \times (4/5) = 8/15$. (In general, $(a/b) \times (c/d) = ac/bd$.)</i> 5.NF.B.4b. 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</p>	<p>MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and critique the reasoning of others. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> • for whole number or fraction q, represent $(a/b) \times q$ as a parts of a partition of q into b equal parts [e.g. using a visual fraction model, $(3/4) \times 5$ can be represented by 3 parts, after partitioning 5 objects into 4 equal parts]. • for whole number or fraction q, represent $(a/b) \times q$ as $a \times q \div b$ [e.g. showing that $(2/5) \times 3$ is equivalent to $(2 \times 3) \div 5$]. • from a story context, interpret $(a/b) \times q$ as a parts of a partition of q into b equal parts. • tile a rectangle having fractional side lengths using unit squares of the appropriate unit fraction [e.g. given a $3 \frac{1}{4}$ inch \times $7 \frac{3}{4}$ inch rectangle, tile the rectangle using $\frac{1}{4}$ inch tiles]. • show that the area found by tiling with unit fraction tiles is the same as would be found by multiplying the side lengths. <p>Learning Goal 9: For whole number or fraction q, interpret the product $(a/b) \times q$ as a parts of a whole partitioned into b equal parts added q times (e.g. using a visual fraction model).</p>

<p>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.</p>	<p>Learning Goal 10: Tile a rectangle with unit fraction squares to find the area and multiply side lengths to find the area of the rectangle, showing that the areas are the same.</p>
<p>Township of Union Unit 2 Grade 5</p>	
<p>District/School Formative Assessment Plan</p>	
<p><i>Formative assessment informs instruction and is ongoing throughout a unit to determine how students are progressing against the standards.</i></p> <ul style="list-style-type: none"> - Self-assessment - Fluency Fact Quizzes (Multiplication/Division facts) - Formative tools throughout each chapter based on EACH new skill taught (given BEFORE the mid-chapter checkpoint AND after; also given BEFORE Go Math Chapter Test) - Reteach/Enrich Supplemental worksheets (to help classify different abilities) - iReady Teacher Toolbox activities - Small group direct instruction for struggling learners -One-on-one instruction (as needed) - Communicating in pairs, small group, or whole group presentations - Teacher observation - Student reflections/quick-writes on a particular lesson/skill - Homework - Daily Math Journal (Word Problem of the Day) 	<p><i>Summative assessment is an opportunity for students to demonstrate mastery of the skills taught during a particular unit.</i></p> <ul style="list-style-type: none"> - Chapter Review - Mid-chapter Checkpoints - Chapter 1 Test - Standards Assessment - Performance Assessment Task - Digital Personal Math Trainer - Standards Mastery - iReady Diagnostic / Growth Check - Ed Connect / Benchmark Test - ECR – Extended Constructive Response - PARCC- style assessments
<p>Focus Mathematical Concepts</p>	
<p><i>Districts should consider listing prerequisites skills. Concepts that include a focus on relationships and representation might be listed as grade level appropriate.</i></p> <p>Prerequisite skills: Students should be able to find equivalent fractions using a common denominator. Students should be able to add fractions with like and unlike denominators.</p> <p>Common Misconceptions: Students are able to convert improper fractions to mixed numbers and vice versa.</p>	

Number Fluency (for grades K-5):

Grade	Required Fluencies
K	Add/Subtract within 5
1	Add/Subtract within 10
2	Add/Subtract within 20
3	Add/Subtract within 1,000 ; Multiplication and Division Facts 0-10
4	Fluently add and subtract multi-digit whole numbers using the standard algorithm; Multiplication and Division Facts 0-12
5	Fluently add and subtract multi-digit whole numbers; Multiplication and Division Facts 0-12; Add and Subtract Benchmark Decimals and Fractions

District/School Tasks

Exemplar tasks or illustrative models could be provided.

- Animated Go Math models
- GO Math iTools
- Grab and Go Differentiated activities (Go Math)
- Using technological resources and other 21st century skills to support and enhance mathematical understanding
- Using connections between pictures, oral language, written symbols, manipulative models, and real-world situations

District/School Primary and Supplementary Resources

District/school resources and supplementary resources that are texts as well as digital resources used to support the instruction.

- Interactive Student Edition
- Personal Math Trainer
- Math On the Spot video
- Real World Videos
- iReady Teacher Toolbox
- Illustrative Math <https://www.illustrativemathematics.org/>
- The Teaching Channel has two hundred math videos for professional development. <http://www.theteachingchannel.org>

Instructional Best Practices and Exemplars

This is a place to capture examples of standards integration and instructional best practices.

- Problem of the Day
- Differentiated Instruction based on students' individual needs
- Learning Centers
- Explicit teacher modeling of how to provide appropriate rationales for math work
- Turn and Talk
- Peer tutoring
- Encouraging and facilitating the sharing of mathematical ideas, discussing mathematics amongst each other, and how to refine and critique each other's ideas and understandings. Making interdisciplinary connections using reading texts