

5th Grade
Utah Core State Standards
Mathematics Curriculum Map
Granite School District

*Striving toward greater focus and coherence through
Content Standards and Practice Standards*

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How to Read the Grade Level Content Standards

Standards define what students should understand and be able to do.

Strands are larger groups of related standards. Standards from different strands may sometimes be closely related.

Strand

Strand: NUMBER AND OPERATIONS IN BASE TEN (3.NBT)

Use place value understanding and properties of operations to perform multi-digit arithmetic. A range of algorithms may be used (Standards 3.NBT.1–3).

- **Standard 3.NBT.1** Use place value understanding to round whole numbers to the nearest 10 or 100.
- **Standard 3.NBT.2** Fluently add and subtract within 1,000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
- **Standard 3.NBT.3** Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (*for example, 9×80 and 5×60*) using strategies based on place value and properties of operations.

Standard

Standards for Mathematical Practice

The Standards for Mathematical Practice in Fifth Grade describe mathematical habits of mind that teachers should seek to develop in their students. Students become mathematically proficient in engaging with mathematical content and concepts as they learn, experience, and apply these skills and attitudes (Standards 5.MP.1–8).

Standard 5.MP.1 Make sense of problems and persevere in solving them.

Explain the meaning of a problem, look for entry points to begin work on the problem, and plan and choose a solution pathway. When a solution pathway does not make sense, look for another pathway that does. Explain connections between various solution strategies and representations. Upon finding a solution, look back at the problem to determine whether the solution is reasonable and accurate, often checking answers to problems using a different method or approach.

Standard 5.MP.2 Reason abstractly and quantitatively.

Make sense of quantities and their relationships in problem situations. Contextualize quantities and operations by using images or stories. Decontextualize a given situation and represent it symbolically. Interpret symbols as having meaning, not just as directions to carry out a procedure. Know and flexibly use different properties of operations, numbers, and geometric objects.

Standard 5.MP.3 Construct viable arguments and critique the reasoning of others.

Use stated assumptions, definitions, and previously established results to construct arguments. Explain and justify the mathematical reasoning underlying a strategy, solution, or conjecture by using concrete referents such as objects, drawings, diagrams, and actions. Listen to or read the arguments of others, decide whether they make sense, ask useful questions to clarify or improve the arguments, and build on those arguments.

Standard 5.MP.4 Model with mathematics.

Identify the mathematical elements of a situation and create a mathematical model that shows the relationships among them. Identify important quantities in a contextual situation, use mathematical models to show the relationships of those quantities, analyze the relationships, and draw conclusions. Models may be verbal, contextual, visual, symbolic, or physical.

Standard 5.MP.5 Use appropriate tools strategically.

Consider the tools that are available when solving a mathematical problem, whether in a real-world or mathematical context. Choose tools that are relevant and useful to the problem at hand, such as drawings, diagrams, technologies, and physical objects and tools, as well as mathematical tools such as estimation or a particular strategy or algorithm.

Standard 5.MP.6 Attend to precision.

Communicate precisely to others by crafting careful explanations that communicate mathematical reasoning by referring specifically to each important mathematical element, describing the relationships among them, and connecting their words clearly to representations. Calculate accurately and efficiently, and use clear and concise notation to record work.

Standard 5.MP.7 Look for and make use of structure.

Recognize and apply the structures of mathematics such as patterns, place value, the properties of operations, or the flexibility of numbers. See complicated things as single objects or as being composed of several objects.

Standard 5.MP.8 Look for and express regularity in repeated reasoning.

Notice repetitions in mathematics when solving multiple related problems. Use observations and reasoning to find shortcuts or generalizations. Evaluate the reasonableness of intermediate results.

5th Grade Mathematics Curriculum Map

Granite School District Scope and Sequence Overview

Unit of Study	Go Math! Alignment	Go Math! Chapter Title	Strands and Standards
1	Chapter 1	Place Value, Multiplication, and Expressions	Strand: Number and Operations in Base Ten Standards: 1, 2, 5, 6 Strand: Operations and Algebraic Thinking Standards: 1,2
2	Chapter 2	Divide Whole Numbers	Strand: Number and Operations in Base Ten Standard: 6 Strand: Number and Operations – Fractions Standard: 3
3	Chapter 3	Add and Subtract Decimals	Strand: Number and Operations in Base Ten Standards: 1, 3a, 3b, 4, 7
4	Chapter 4	Multiply Decimals	Strand: Number and Operations in Base Ten Standards: 2, 7
5	Chapter 5	Divide Decimals	Strand: Number and Operations in Base 10 Standards: 2, 7
6	Chapter 6	Add and Subtract Fractions with Unlike Denominators	Strand: Number and Operations – Fractions Standards: 1, 2
7	Chapter 7	Multiply Fractions	Strand: Number and Operations – Fractions Standards: 4a, 4b, 5a, 5b, 6
8	Chapter 8	Divide Fractions	Strand: Number and Operations - Fractions Standards: 3, 7a, 7b, 7c
9	Chapter 9	Algebra: Patterns and Graphing	Strand: Measurement and Data Standard: 2 Strand: Geometry Standards: 1, 2 Strand: Operations and Algebraic Thinking Standard: 3
10	Chapter 10	Convert Units of Measure	Strand: Measurement and Data Standard: 1
11	Chapter 11	Geometry and Volume	Strand: Measurement and Data Standards: 3, 3a, 3b, 4, 5a, 5b, 5c Strand: Geometry Standards: 3, 4

5th Grade

Instruction and Assessment Semester Schedule 2017-2018

It is expected that the units will be taught consecutively. The table below reflects which units and standards are assessed on each semester test. Semester Benchmark Tests are required by GSD except for the Semester 2 Posttest which is supplemental. Additional assessment options are on each Unit of Study in the GSD maps.

Approx. Number of Days of Instruction	Semester 1 Pretest 8/21 – 2/9 (required)	16	13	16	14	14	16	Semester 1 Posttest 12/11 – 2/9 (required)	Semester 2 Pretest 12/11 – 3/5 (required)	19	14	17	14	19	Semester 2 Posttest 3/5 – 5/25 (supplemental)	SAGE 3/19 – 5/18 (required)	End of Year
Number of Lessons		12	9	12	8	8	10			10	5	7	7	12			Getting Ready for Gr. 6 Unit
Instructional Content		Unit of Study 1	Unit of Study 2	Unit of Study 3	Unit of Study 4	Unit of Study 5	Unit of Study 6			Unit of Study 7	Unit of Study 8	Unit of Study 9	Unit of Study 10	Unit of Study 11			
Math Standards		5.OA.1 *5.OA.2 *5.NBT.1 *5.NBT.2 5.NBT.3 5.NBT.4								5.NBT.5 *5.NBT.6 *5.NBT.7 5.NF.1 *5.NF.2		*5.OA.3 5.NF.3 *5.NF.4 *5.NF.5 5.NF.6 *5.NF.7 *5.MD.1 5.MD.2					5.MD.3 5.MD.4 *5.MD.5 5.G.1 5.G.2 5.G.3 *5.G.4

*Indicates emphasized standards.

Beginning and Ending of Semesters

1st Semester Aug 21, 2017 – Jan 11, 2018
 2nd Semester Jan 16, 2018 – May 25, 2018

5th Grade

Instruction and Assessment Quarterly Schedule 2017-2018

It is expected that the units will be taught consecutively. The table below reflects which units and standards are assessed on each Granite Quarterly Benchmark (GQB). Quarterly Benchmark Tests are supplemental. Additional assessment options are on each Unit of Study in the GSD maps.

Approx. Number of Days of Instruction		16	13	16		14	14	16		19	14	17		14	19	End of Year	
Number of Lessons		12	9	12		8	8	10		10	5	7		7	12		
Instructional Content		Unit of Study 1	Unit of Study 2	Unit of Study 3		Unit of Study 4	Unit of Study 5	Unit of Study 6		Unit of Study 7	Unit of Study 8	Unit of Study 9		Unit of Study 10	Unit of Study 11	Getting Ready for Gr. 6 Unit	
Math Standards	GQB 1 8/21 (supplemental)	5.OA.1 *5.OA.2 *5.NBT.1 *5.NBT.2 5.NBT.3 5.NBT.4 5.NBT.5 *5.NBT.6 *5.NBT.7			GQB 2 10/30 (supplemental)	5.NBT.2 *5.NBT.7 5.NF.1 *5.NF.2			GQB 3 1/16 (supplemental)	*5.OA.3 5.NF.3 *5.NF.4 *5.NF.5 5.NF.6 *5.NF.7 5.MD.2 5.G.1 5.G.2			GQB 4 3/5 (supplemental)	*5.MD.1 5.MD.3 5.MD.4 *5.MD.5 5.G.3 *5.G.4		SAGE 3/19 – 5/18 (required)	

*Indicates emphasized standards.

Beginning and Ending of Quarters

1st Quarter Aug 21, 2017 – Oct 26, 2017
 2nd Quarter Oct 30, 2017 – Jan 11, 2018
 3rd Quarter Jan 16, 2018 – Mar 28, 2018
 4th Quarter Apr 4, 2018 – May 25, 2018

5th Grade Mathematics Curriculum Map - Overview

Lesson Plan Format:

Lesson Plan Format with Go Math! References:

Unit of Study	The mathematical content is sequenced in Units of Study that will take approximately 2-3 weeks each to teach. The sequence of Units of Study provides a coherent flow to mathematics instruction throughout the year.
Go Math! Alignment	The primary textbook adopted in Granite School District for Grades K-6 is Houghton Mifflin Harcourt's Go Math!, 2015 Edition.
Math Content and Language Objectives	The Math Content and Language Objectives are to be posted for each lesson, restated to students during the lesson, and revisited at the end of each lesson. These are written as "I Can" statements. Suggested Math Language Objectives can be located on the next page.
Key Concepts for Differentiation 🔑	In an effort to assist teachers in the process of differentiation in Tier I teaching, key concepts have been identified in the curriculum maps as those specific objectives a teacher would focus on during small group instruction with struggling students. Key concepts cover minimum, basic skills and knowledge every student must master. Key concepts are NOT an alternative to teaching the entire Utah State Core Standards, rather they emphasize which concepts to prioritize for differentiation.
Vocabulary	Vocabulary cards for instruction and word walls can be found at: http://www.graniteschools.org/mathvocabulary/
Additional Resources	Each elementary school has a copy of <u>Elementary and Middle School Mathematics</u> , 7 th Edition, by John A. Van de Walle. This book is intended to be a resource for mathematical content and instructional strategy suggestions. The websites are a resource for lesson plans, teacher tutorials, content videos, student applets, and games. The resources are NOT intended to be all-inclusive. It is the teacher's responsibility to teach the Utah Core State Standards for Mathematics content, not the resources.
Assessment	There are many formative and summative assessment options: <ul style="list-style-type: none"> • Go Math! Options: Prerequisite Skills Inventory; Beginning-of-Year, Middle-of-Year, and End-of-Year Benchmark Tests; Show What You Know Diagnostic Assessments; Diagnostic Interview Assessments; Portfolio Assessment; Mid-Chapter Checkpoints; Chapter Review/Tests; Chapter Tests; Performance Assessments; Quick Checks; and, Personal Math Trainer. The assessments are intended to be used to provide immediate feedback that can be used for Tier 2 and/or Tier 3 interventions for individual students. The results may also be used to identify concepts for reteaching the whole class if needed. • Semester Benchmark Assessments – These are cumulative tests for multiple Units of Study. These are to be given as a pretest and a posttest. Students not mastering content will need Tier 2 and/or Tier 3 interventions. • Exit slips, teacher observations, daily class work, homework, and basal assessments are to be used at the teacher's discretion to help guide and direct instruction.

Math Language Objectives



[Note: The following language objectives must be written in student-friendly terms, adapted to specific lessons, and aligned with the language needs of students.]

Reading Standards for Informational Text

- Explain the relationships between concepts in a math text.
- Determine the meaning of specific math words or phrases in a text.
- Compare and contrast the structure of ideas or concepts in math texts.
- Analyze multiple accounts of the same math topic, noting similarities and differences.
- Read and comprehend math texts.

Writing Standards

- Write opinion pieces on math topics, supporting a point of view with reasons and information.
- Write explanatory math text to convey ideas and information clearly.
- Use precise math language to explain the topic.
- Produce clear, coherent math writing appropriate to the task.
- Use technology to produce math writing and collaborate with others.
- Draw evidence from informational math texts to support analysis and reflection.
- Write routinely for a range of math tasks.

Speaking and Listening Standards

- Engage in collaborative discussions about math topics.
- Summarize math information presented in visual, quantitative, and oral formats.
- Summarize the math points a speaker makes and explain how each claim is supported by reasons and evidence.
- Report on a math topic or present an opinion, sequencing ideas logically and using appropriate facts and details.
- Add visual displays to math presentations.
- Use formal English to present math ideas.

Unit of Study 1	5 th Grade	Quarter 1	Approx. 14 – 16 days	GSD Revised 6/1/17
Strand: Number and Operations in Base Ten				5.NBT
Understand the place value system.				
<ol style="list-style-type: none"> 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 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. 				
Perform operations with multi-digit whole numbers and with decimals to hundredths.				
<ol style="list-style-type: none"> 5. Fluently multiply multi-digit whole numbers using the standard algorithm. 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. 				
Strand: Operations and Algebraic Thinking				5.OA
Write and interpret numerical expressions.				
<ol style="list-style-type: none"> 1. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. 2. Write and interpret simple expressions. <ol style="list-style-type: none"> a. Write simple expressions that record calculations with numbers. For example, use $2 \times (8 + 7)$ to express the calculation “add 8 and 7, then multiply by 2.” b. Interpret numerical expressions without evaluating them. For example, use conceptual understanding of multiplication to interpret $3 \times (18932 + 921)$ as being three times as large as $18932 + 921$ without calculating the indicated sum or product. 				
Math Content Objectives	Vocabulary			
<p>I can:</p> <p><u>5.NBT.1</u></p> <ul style="list-style-type: none"> ☞ Recognize that a digit in one place represents 10 times as much as the place to its right. ☞ Recognize that a digit in one place represents 1/10 as much as the place to its left. <p><u>5.NBT.2</u></p> <ul style="list-style-type: none"> ☞ Explain patterns in the number of zeros in a product when multiplying a number by a power of ten. • Explain patterns in the placement of the decimal point when a decimal is multiplied by a power of ten. 	<ul style="list-style-type: none"> • Additive Identity Property of 0 • algorithm • area model • array • Associative Property of Addition • Associative Property of Multiplication • base of an exponent • braces • brackets • Commutative Property of Addition • Commutative Property of Multiplication • Distributive Property 			

Unit of Study 1 (continued)

Math Content Objectives	Vocabulary (cont.)	
<p><u>5.NBT.2 (continued)</u></p> <ul style="list-style-type: none"> • Explain patterns in the placement of the decimal point when a decimal is divided by a power of ten. ☛ Use exponents to show powers of ten. <p><u>5.NBT.5</u></p> <ul style="list-style-type: none"> • Fluently multiply multi-digit whole numbers. • Multiply multi-digit whole numbers using the standard algorithm. <p><u>5.NBT.6</u></p> <ul style="list-style-type: none"> ☛ Use strategies to divide whole numbers. ☛ Show and explain the relationship between multiplication and division. • Show and explain division using place value. • Solve a division problem using an equation. • Show and explain division using a rectangular array. • Show and explain division using an area model. <p><u>5.OA.1</u></p> <ul style="list-style-type: none"> • Use parentheses in numerical expressions. • Use brackets in numerical expressions. • Use braces in numerical expressions. • Evaluate expressions with parentheses. • Evaluate expressions with brackets. • Evaluate expressions with braces. <p><u>5.OA.2</u></p> <ul style="list-style-type: none"> ☛ Write simple expressions that record calculations with numbers. ☛ Interpret the meaning of numerical expressions. <p>☛ Key Concepts for Differentiation - See p. 7.</p>	<ul style="list-style-type: none"> • dividend • divisor • equation • estimate • evaluate • exponent • expression • factor • inverse operations • long division • Multiplicative Identity Property of 1 • multiply • numerical expression • Order of Operations • parentheses • pattern • period • place value • powers of ten • product • quotient • remainder • sum • whole numbers 	

Go Math! Utah Core Alignment	Unit of Study 1 – Additional Resources
<u>Lesson 1.1</u> 5.NBT.1	<p>Place Value (include Powers of Ten) VDW 7th Edition - pages 208-210 Cosmic Voyage Clip - narrated by Morgan Freeman - http://www.youtube.com/watch?v=qxXf7AJZ73A Powers of 10 - Charles and Ray Eames (original movie clip) - http://www.youtube.com/watch?v=38ti9BJiyvs LearnAlberta - Place Value - Video Tutorial - http://www.learnalberta.ca/content/me5l/html/Math5.html?launch=true Education Place - Place Value - Student Tutorial - http://eduplace.com/cgi-bin/schtemplate.cgi?template=/math/hmm/models/tm_popup.shtml&grade=5&chapter=1&lesson=1&title=Place+Value+Through+Hundred+Thousands&tm=tmff0101e Mr. Nussbaum - Decimals of the Caribbean - Game - http://www.mrnussbaum.com/docrb1.htm Mr. Nussbaum - Place Value Pirates - Game - http://www.mrnussbaum.com/placevaluepirates.htm The Scale of the Universe - Powers of Ten - Demonstration Model - http://htwins.net/scale2/scale2.swf?bordercolor=white</p>
<u>Lesson 1.2</u> 5.NBT.1	
<u>Lesson 1.3</u> 5.NBT.6	
<u>Lesson 1.4</u> 5.NBT.2	
<u>Lesson 1.5</u> 5.NBT.2	<p>Division of Whole Numbers VDW 7th Edition - pages 232-237 LearnAlberta - Division of Whole Numbers - Video Tutorial – http://www.learnalberta.ca/content/me5l/html/math5.html?goLesson=9 Double Division - Division by a 2-Digit Number - Algorithm Applet - http://www.doubledivision.org/ NLVM - Rectangle Division- Interactive Applet - http://nlvm.usu.edu/en/nav/frames_asid_193_g_2_t_1.html UEN - “Remainder of One” Lesson - http://www.uen.org/Lessonplan/preview.cgi?LPid=6152 UEN - “Remainder Riddles” Lesson - http://www.uen.org/Lessonplan/preview.cgi?LPid=6153 UEN - “Partial Quotient” Lesson - http://www.uen.org/Lessonplan/preview.cgi?LPid=6154 Learn Alberta - Division of Whole Numbers - Video Tutorial - http://www.learnalberta.ca/content/me5l/html/Math5.html?launch=true Education Place - Divide with Remainders - Student Tutorial - http://eduplace.com/cgi-bin/schtemplate.cgi?template=/math/hmm/models/tm_popup.shtml&grade=4&chapter=8&lesson=2&title=Divide+with+Remainders&tm=tmfe0802e UEN - “Mystery Dinner” Lesson - http://www.uen.org/Lessonplan/preview.cgi?LPid=21553 NLVM - Number Line Arithmetic - Interactive Applet - http://nlvm.usu.edu/en/nav/frames_asid_197_g_2_t_1.html?open=activities Math Solutions - “A Remainder of One” Lesson - http://www.mathsolutions.com/documents/0-941355-46-2_L.pdf</p>
<u>Lesson 1.6</u> 5.NBT.5	
<u>Lesson 1.7</u> 5.NBT.5	
<u>Lesson 1.8</u> 5.NBT.6	
<u>Lesson 1.9</u> 5.NBT.6	
<u>Lesson 1.10</u> 5.OA.2	<p>Multiplication of Whole Numbers VDW 7th Edition - pages 226-232 NLVM - Rectangle Multiplication- Interactive Applet - http://nlvm.usu.edu/en/nav/frames_asid_192_g_2_t_1.html NLVM - Number Line Arithmetic - Interactive Applet - http://nlvm.usu.edu/en/nav/frames_asid_197_g_2_t_1.html?open=activities Illuminations - “Multiply and Conquer” Lesson - http://illuminations.nctm.org/LessonDetail.aspx?id=L858 PBS Kids Cyberchase - Multiplying Bigger Numbers - Video Tutorial - http://www.teachersdomain.org/resource/vtl07.math.number.ope.multbignum/ Math Playground - Grand Slam Math - Practice Exercises - http://www.mathplayground.com/GrandSlamMath2.html</p>
<u>Lesson 1.11</u> 5.OA.1	
<u>Lesson 1.12</u> 5.OA.1	

Unit of Study 1 – Additional Resources (continued)

Order of Operations

VDW 7th Edition - pages 474-475

LearnAlberta - Exploring Order of Operations - Student Interactive

http://www.learnalberta.ca/content/mejhm/index.html?i=0&ID1=AB.MATH.JR.NUMB&ID2=AB.MATH.JR.NUMB.INTE&lesson=html/object_interactives/order_of_operations/use_it.html

Illustrations - “Order of Operations Bingo” Lesson - <http://illustrations.nctm.org/LessonDetail.aspx?id=L730>

Math Goodies - Order of Operations - Tutorial and Practice Exercises - http://www.mathgoodies.com/lessons/vol7/order_operations.html

Illustrations - Everything Balances Out in the End - Lesson - <http://illustrations.nctm.org/LessonDetail.aspx?ID=L643>

Illustrations - “Exploring Krypto” Lesson - <http://illustrations.nctm.org/LessonDetail.aspx?ID=L803>

Purple Math - Order of Operations- Teacher Tutorial - <http://www.purplemath.com/modules/orderops2.htm>

Math Playground - Order of Operations - Game - http://www.mathplayground.com/order_of_operations.html

Kahn Academy - Order of Operations - Teacher Tutorial - <http://www.khanacademy.org/video/order-of-operations?topic=order-of-operations>

Shodor - Order of Operations - Assessment - <http://www.shodor.org/interactivate/activities/OperationsQuiz/>

Shodor - Order of Operations Four - Game - <http://www.shodor.org/interactivate/activities/OrderOfOperationsFou/>

Jefferson Lab - Speed Math - Game - <http://education.jlab.org/smdeluxe/index.html>

IXL - Simplify Expressions Using Order of Operations - Assessment - <http://www.ixl.com/math/grade-5/simplify-expressions-using-order-of-operations-and-parentheses>

Mr. Nussbaum - The Order of Operations Royal Rescue - Game - <http://www.mrnussbaum.com/orderops/index.html>

YouTube - Order of Operations - Cartoon - <http://www.youtube.com/watch?v=p14m2bDHTq8&feature=related>

Properties of Operations

VDW 7th Edition - pages 161; 265-266

Suite 101 - Teacher Tutorial - http://archive.suite101.com/article.cfm/math_fun/99844

Math League - Properties - Teacher Tutorial - <http://www.mathleague.com/help/wholenumbers/wholenumbers.htm>

Purplemath - Properties - Teacher Tutorial - <http://www.purplemath.com/modules/numbprop.htm>

Unit of Study 1 - Additional Resources (continued)

Literature

- Arithme-tickle by J. Patrick Lewis
- Count to a Million by Jerry Pallotta
- Divide and Ride by Stuart J. Murphy
- Division Made Easy by Rebecca Wingard-Nelson
- The Doorbell Rang by Pat Hutchins
- How Much is a Million by David M. Schwartz
- A Million Dots by Andrew Clements
- Multiplication Made Easy by Rebecca Wingard-Nelson
- Powers of Ten by Charles and Ray Eames
- Remainder of One by Elinor J. Pinczes
- Riddle-iculous Math by Joan Hoab
- Sir Cumterence and all the King's Tens by Cindy Neuschwander

Assessment Options

- **Go Math! Assessment Options:** Show What You Know Diagnostic Assessment; Mid-Chapter Checkpoint; Quick Checks; Portfolio Assessment; Chapter 1 Review/Test; Chapter 1 Test; Diagnostic Interview Assessment; Personal Math Trainer.
- **Daily/Weekly Formative Assessment Options:** Exit Slips, Observation, Daily Work, Homework.

Unit of Study 2	5 th Grade	Quarter 1	Approx. 11 – 13 days	GSD Revised 6/1/17
Strand: Number and Operations in Base Ten				5.NBT
Perform operations with multi-digit whole numbers and with decimals to hundredths.				
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.				
Strand: Number and Operations – Fractions				5.NF
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, through the use of visual fraction models or equations to represent the problem. <i>For example, interpret $3/4$ as the result of dividing three by four, noting that $3/4$ multiplied by four equals three, and that when three wholes are shared equally among four people each person has a share of size $3/4$. If nine 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>				
Math Content Objectives	Vocabulary			
<p>I can:</p> <p>5.NBT.6</p> <ul style="list-style-type: none"> ☛ Use strategies to divide whole numbers. ☛ Show and explain the relationship between multiplication and division. ☛ Show and explain division using place value. • Solve a division problem using an equation. • Show and explain division using a rectangular array. • Show and explain division using an area model. <p>5.NF.3</p> <ul style="list-style-type: none"> • Understand that a fraction bar can mean to divide. • Find an equivalent whole number, mixed number, or decimal for a fraction by dividing the numerator by the denominator. • Solve division word problems where the quotient is a fraction or a mixed number. <p>☛ Key Concepts for Differentiation - See p. 7.</p>	<ul style="list-style-type: none"> • area model • array • bar model • compatible numbers • decimal • denominator • Distributive Property • dividend • divisor • equation • estimate • fraction bar • inverse operations • long division • mixed number • numerator • partial quotients • place value • quotient • remainder • whole numbers 			

Go Math! Utah Core Alignment	Unit of Study 2 - Additional Resources
<p><u>Lesson 2.1</u> 5.NBT.6</p> <p><u>Lesson 2.2</u> 5.NBT.6</p> <p><u>Lesson 2.3</u> 5.NBT.6</p> <p><u>Lesson 2.4</u> 5.NBT.6</p> <p><u>Lesson 2.5</u> 5.NBT.6</p> <p><u>Lesson 2.6</u> 5.NBT.6</p> <p><u>Lesson 2.7</u> 5.NF.3</p> <p><u>Lesson 2.8</u> 5.NBT.6</p> <p><u>Lesson 2.9</u> 5.NBT.6</p>	<p><u>Division of Whole Numbers</u> VDW 7th Edition - pages 232-237 LearnAlberta - Division of Whole Numbers - Video Tutorial – http://www.learnalberta.ca/content/me5l/html/math5.html?goLesson=9 Double Division - Division by a 2-Digit Number - Algorithm Applet - http://www.doubledivision.org/ NLVM - Rectangle Division- Interactive Applet - http://nlvm.usu.edu/en/nav/frames_asid_193_g_2_t_1.html UEN - “Remainder of One” Lesson - http://www.uen.org/Lessonplan/preview.cgi?LPid=6152 UEN - “Remainder Riddles” Lesson - http://www.uen.org/Lessonplan/preview.cgi?LPid=6153 UEN - “Partial Quotient” Lesson - http://www.uen.org/Lessonplan/preview.cgi?LPid=6154 Learn Alberta - Division of Whole Numbers - Video Tutorial - http://www.learnalberta.ca/content/me5l/html/Math5.html?launch=true Education Place - Divide with Remainders - Student Tutorial - http://eduplace.com/cgi-bin/schtemplate.cgi?template=/math/hmm/models/tm_popup.thml&grade=4&chapter=8&lesson=2&title=Divide+with+Remainders&tm=tmfe0802e UEN - “Mystery Dinner” Lesson - http://www.uen.org/Lessonplan/preview.cgi?LPid=21553 NLVM - Number Line Arithmetic - Interactive Applet - http://nlvm.usu.edu/en/nav/frames_asid_197_g_2_t_1.html?open=activities Math Solutions - “A Remainder of One” Lesson - http://www.mathsolutions.com/documents/0-941355-46-2_L.pdf</p> <p><u>Properties of Operations</u> VDW 7th Edition - pages 161; 265-266 Suite 101 - Properties - Teacher Tutorial - http://archive.suite101.com/article.cfm/math_fun/99844 Math League - Properties - Teacher Tutorial - http://www.mathleague.com/help/wholenumbers/wholenumbers.htm Purplemath - Properties - Teacher Tutorial - http://www.purplemath.com/modules/numbprop.htm</p> <p><u>Division with Fractional Remainders</u> VDW 7th Edition - pages 157-158 Illustrations - “Order of Operations Bingo” Lesson - http://illuminations.nctm.org/LessonDetail.aspx?id=L818</p> <p><u>Literature</u> <u>Divide and Ride</u> by Stuart J. Murphy <u>Division Made Easy</u> by Rebecca Wingard-Nelson <u>The Doorbell Rang</u> by Pat Hutchins <u>Remainder of One</u> by Elinor J. Pinczes</p>
<p>Assessment Options</p>	<ul style="list-style-type: none"> • Go Math! Assessment Options: Show What You Know Diagnostic Assessment; Mid-Chapter Checkpoint; Quick Checks; Portfolio Assessment; Chapter 2 Review/Test; Chapter 2 Test; Diagnostic Interview Assessment; Personal Math Trainer. • Daily/Weekly Formative Assessment Options: Exit Slips, Observation, Daily Work, Homework.

Unit of Study 3	5 th Grade	Quarter 1	Approx. 14 – 16 days	GSD Revised 6/1/17
Strand: Number and Operations in Base Ten				5.NBT
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.				
3. Read, write, and compare decimals to thousandths.				
a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form. <i>For example, 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000).</i>				
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.				
Perform operations with multi-digit whole numbers and with decimals to hundredths.				
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. In this standard, dividing decimals is limited to a whole number dividend with a decimal divisor or a decimal dividend with a whole number divisor. Compare the value of the quotient on the basis of the values of the dividend and the divisor.				
Math Content Objectives	Vocabulary		Vocabulary (cont.)	
<p>I can:</p> <p>5.NBT.1</p> <ul style="list-style-type: none"> ☛ Recognize that a digit in one place represents 10 times as much as the place to its right. ☛ Recognize that a digit in one place represents 1/10 as much as the place to its left. <p>5.NBT.3a</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. <p>5.NBT.3b</p> <ul style="list-style-type: none"> • Compare two decimals to thousandths. • Correctly use <, >, and = to record the comparison of two decimals. <p>5.NBT.4</p> <ul style="list-style-type: none"> • Round decimals to any place. 	<ul style="list-style-type: none"> • addend • Associative Property of Addition • base-ten numeral form • base-ten numerals • benchmark • Commutative Property of Addition • compose • decimal • decimal fraction • decimal point • decompose • difference • estimate • expanded form • greater than • hundredth • hundredths • inequality • less than 		<ul style="list-style-type: none"> • minuend • place value • rounding • sequence • standard form • subtrahend • sum • tenth • tenths • term • thousandth • thousandths 	

Unit of Study 3 (continued)

Math Content Objectives

5.NBT.7

- o→ Add decimals to hundredths and write an explanation of the reasoning used.
 - o→ Subtract decimals to hundredths and write an explanation of the reasoning used.
 - Multiply decimals to hundredths and write an explanation of the reasoning used.
 - Divide decimals to hundredths and write an explanation of the reasoning used.
- o→ Key Concepts for Differentiation - See p. 7.

Go Math! Utah Core Alignment	Unit of Study 3 - Additional Resources
<p>Lesson 3.1 5.NBT.1</p> <p>Lesson 3.2 5.NBT.3a</p> <p>Lesson 3.3 5.NBT.3b</p> <p>Lesson 3.4 5.NBT.4</p> <p>Lesson 3.5 5.NBT.7</p> <p>Lesson 3.6 5.NBT.7</p> <p>Lesson 3.7 5.NBT.7</p> <p>Lesson 3.8 5.NBT.7</p> <p>Lesson 3.9 5.NBT.7</p> <p>Lesson 3.10 5.NBT.7</p> <p>Lesson 3.11 5.NBT.7</p> <p>Lesson 3.12 5.NBT.7</p>	<p><u>Adding and Subtracting Decimals</u> VDW 7th Edition - pages 342-343 Learn Alberta - Addition and Subtraction with Decimals- Video Tutorial - http://www.learnalberta.ca/content/me5l/html/Math5.html?launch=true NLVM - Base Blocks Decimals - Interactive Applet - http://nlvm.usu.edu/en/nav/frames_asid_264_g_2_t_1.html NLVM - Diffy (Decimals) - Interactive Applet - http://nlvm.usu.edu/en/nav/frames_asid_326_g_2_t_1.html NLVM - Circle 3 - Interactive Applet - http://nlvm.usu.edu/en/nav/frames_asid_187_g_2_t_1.html?open=instructions&from=category_g_2_t_1.html PBS Kids Cyberchase - Railroad Repair - Game - http://pbskids.org/cyberchase/math-games/railroad-repair/ PBS Kids Cyberchase - Adding Decimals Common Misconceptions - Video Tutorial - http://www.teachersdomain.org/asset/vtl07_vid_railsdetou/ PBS Kids Cyberchase - Adding Decimals - Video Tutorial - http://www.teachersdomain.org/asset/vtl07_vid_shorttrailu/ Scholastic Study Jams - Addition and Subtraction of Decimals - Student Tutorial - http://studyjams.scholastic.com/studyjams/jams/math/decimals-percents/add-sub-decimals.htm</p> <p><u>Comparing Decimals</u> VDW 7th Edition - pages 336-337 UEN - “Patterns with Decimals” Lesson - http://www.uen.org/Lessonplan/preview.cgi?LPid=6165 Learn Alberta - Comparing and Ordering Decimals - Video Tutorial - http://www.learnalberta.ca/content/me5l/html/Math5.html?launch=true BBC - Builder Ted - Game - http://www.bbc.co.uk/education/mathsf/shockwave/games/laddergame.html Decimal Squares - Rope Tug - Game - http://www.decimalsquares.com/dsGames/games/tugowar.html</p> <p><u>Rounding Decimals</u> BBC - Rounding Off - Game - http://www.bbc.co.uk/education/mathsf/shockwave/games/roundoff.html Decimal Squares - Laser Beams - Game - http://decimalsquares.com/dsGames/games/laserbeam.html Scholastic Study Jams - Rounding Decimals - Student Tutorial - http://studyjams.scholastic.com/studyjams/jams/math/decimals-percents/rounding-decimals.htm Mr. Nussbaum - Half-court rounding - Game - http://www.mrnussbaum.com/rounding/index.html Mr. Nussbaum - Rounding Master - Game - http://www.mrnussbaum.com/mathmillions/index.html</p> <p><u>Literature</u> <u>Do You Know Dewey? Exploring the Dewey Decimal System</u> by Brian P. Cleary <u>The Monster Who Did My Math</u> by Danny Schnitzlein <u>The \$1.00 Word Riddle Book</u> by Marilyn Burns <u>The Phantom Tollbooth</u> by Norton Juster (See VDW 7th Edition - page 345)</p>
<p>Assessment Options</p>	<ul style="list-style-type: none"> • Go Math! Assessment Options: Show What You Know Diagnostic Assessment; Mid-Chapter Checkpoint; Quick Checks; Portfolio Assessment; Chapter 3 Review/Test; Chapter 3 Test; Diagnostic Interview Assessment; Personal Math Trainer. • Daily/Weekly Formative Assessment Options: Exit Slips, Observation, Daily Work, Homework.

Unit of Study 4	5 th Grade	Quarter 2	Approx. 10 – 14 days	GSD Revised 6/1/17
Strand: Number and Operations in Base Ten				5.NBT
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.				
Perform operations with multi-digit whole numbers and with decimals to hundredths.				
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. In this standard, dividing decimals is limited to a whole number dividend with a decimal divisor or a decimal dividend with a whole number divisor. Compare the value of the quotient on the basis of the values of the dividend and the divisor.				
Math Content Objectives	Vocabulary			
<p>I can:</p> <p>5.NBT.2</p> <ul style="list-style-type: none"> • Explain patterns in the number of zeros in a product when multiplying a number by a power of ten. • Explain patterns in the placement of the decimal point when a decimal is multiplied by a power of ten. • Explain patterns in the placement of the decimal point when a decimal is divided by a power of ten. • Use exponents to show powers of ten. <p>5.NBT.7</p> <ul style="list-style-type: none"> • Add decimals to hundredths and write an explanation of the reasoning used. • Subtract decimals to hundredths and write an explanation of the reasoning used. • Multiply decimals to hundredths and write an explanation of the reasoning used. • Divide decimals to hundredths and write an explanation of the reasoning used. <p>• Key Concepts for Differentiation - See p. 7.</p>	<ul style="list-style-type: none"> • Associative Property of Multiplication • Commutative Property of Multiplication • decimal • decimal point • Distributive Property • expanded form • exponent • factor • hundredth • hundredths • partial product • pattern • place value • powers of ten • product • tenth • tenths • thousandth • thousandths 			

Go Math! Utah Core Alignment	Unit of Study 4 - Additional Resources
<p>Lesson 4.1 5.NBT.2</p> <p>Lesson 4.2 5.NBT.7</p> <p>Lesson 4.3 5.NBT.2; 5.NBT.7</p> <p>Lesson 4.4 5.NBT.2; 5.NBT.7</p> <p>Lesson 4.5 5.NBT.7</p> <p>Lesson 4.6 5.NBT.7</p> <p>Lesson 4.7 5.NBT.2; 5.NBT.7</p> <p>Lesson 4.8 5.NBT.2; 5.NBT.7</p>	<p>Multiplication of Decimals VDW 7th Edition - pages 343-344 Learn Alberta - Multiplication and Division of Decimals - Video Tutorial - http://www.learnalberta.ca/content/me5l/html/Math5.html?launch=true Education Place - Multiply Decimals - Student Tutorial - http://eduplace.com/cgi-bin/schtemplate.cgi?template=/math/hmm/models/tm_popup.shtml&grade=5&chapter=13&lesson=4&title=Multiply+Decimals&tm=tmff1304e HMH E-Lab - Exploring Division of Decimals - Assessment - http://www.hbschool.com/activity/elab2004/gr6/1.html The Scale of the Universe - Powers of Ten - Demonstration Model - http://htwins.net/scale2/scale2.swf?bordercolor=white</p> <p>Literature Once Upon a Dime (A Math Adventure) by Nancy Kelly Allen</p>
<p>Assessment Options</p>	<ul style="list-style-type: none"> • Go Math! Assessment Options: Show What You Know Diagnostic Assessment; Mid-Chapter Checkpoint; Quick Checks; Portfolio Assessment; Chapter 4 Review/Test; Chapter 4 Test; Diagnostic Interview Assessment; Personal Math Trainer. • Daily/Weekly Formative Assessment Options: Exit Slips, Observation, Daily Work, Homework.

Unit of Study 5	5 th Grade	Quarter 2	Approx. 10 – 14 days	GSD Revised 6/1/17
Strand: Number and Operations in Base Ten				5.NBT
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.				
Perform operations with multi-digit whole numbers and with decimals to hundredths.				
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. In this standard, dividing decimals is limited to a whole number dividend with a decimal divisor or a decimal dividend with a whole number divisor. Compare the value of the quotient on the basis of the values of the dividend and the divisor.				
Math Content Objectives	Vocabulary			
<p>I can:</p> <p><u>5.NBT.2</u></p> <ul style="list-style-type: none"> • Explain patterns in the number of zeros in a product when multiplying a number by a power of ten. • Explain patterns in the placement of the decimal point when a decimal is multiplied by a power of ten. • Explain patterns in the placement of the decimal point when a decimal is divided by a power of ten. • Use exponents to show powers of ten. <p><u>5.NBT.7</u></p> <ul style="list-style-type: none"> • Add decimals to hundredths and write an explanation of the reasoning used. • Subtract decimals to hundredths and write an explanation of the reasoning used. • Multiply decimals to hundredths and write an explanation of the reasoning used. • Divide decimals to hundredths and write an explanation of the reasoning used. <p>☞ Key Concepts for Differentiation - See p. 7.</p>	<ul style="list-style-type: none"> • compatible numbers • decimal • decimal point • dividend • divisor • equivalent fractions • estimate • exponent • hundredth • hundredths • place value • powers of ten • quotient • remainder • tenth • tenths • thousandth • thousandths 			

Go Math! Utah Core Alignment	Unit of Study 5 - Additional Resources
<p><u>Lesson 5.1</u> 5.NBT.2</p> <p><u>Lesson 5.2</u> 5.NBT.7</p> <p><u>Lesson 5.3</u> 5.NBT.7</p> <p><u>Lesson 5.4</u> 5.NBT.2; 5.NBT.7</p> <p><u>Lesson 5.5</u> 5.NBT.7</p> <p><u>Lesson 5.6</u> 5.NBT.2; 5.NBT.7</p> <p><u>Lesson 5.7</u> 5.NBT.7</p> <p><u>Lesson 5.8</u> 5.NBT.7</p>	<p><u>Division with Decimals</u> VDW 7th Edition- pages 344-345 Learn Alberta - Multiplication and Division of Decimals- Video Tutorial - http://www.learnalberta.ca/content/me5l/html/Math5.html?launch=true Education Place - Divide a Decimal by a Decimal - Student Tutorial - http://eduplace.com/cgi-bin/schtemplate.cgi?template=/math/hmm/models/tm_popup.html&grade=5&chapter=14&lesson=7&title=Divide+a+Decimal+by+a+Decimal&tm=tmff1407e Math Playground - How to Divide Decimals - Student Tutorial - http://www.mathplayground.com/howto_dividedecimals.html Scholastic Study Jams - Division of Decimals - Student Tutorial - http://studyjams.scholastic.com/studyjams/jams/math/decimals-percents/division-of-decimals.htm The Scale of the Universe - Powers of Ten - Demonstration Model - http://htwins.net/scale2/scale2.swf?bordercolor=white</p> <p><u>Literature</u></p>
<p>Assessment Options</p>	<ul style="list-style-type: none"> • Go Math! Assessment Options: Show What You Know Diagnostic Assessment; Mid-Chapter Checkpoint; Quick Checks; Portfolio Assessment; Chapter 5 Review/Test; Chapter 5 Test; Diagnostic Interview Assessment; Performance Assessment Chapters 1-5; Personal Math Trainer. • Daily/Weekly Formative Assessment Options: Exit Slips, Observation, Daily Work, Homework.

Unit of Study 6	5 th Grade	Quarter 2	Approx. 12 – 16 days	GSD Revised 6/1/17
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Strand: Number and Operations – Fractions 5.NF

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 by, for example, 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 $2/5 + 1/2 = 3/7$ as an incorrect result, by observing that $3/7 < 1/2$.*

Math Content Objectives	Vocabulary	Vocabulary (cont.)
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<p>I can:</p> <p>5.NF.1</p> <ul style="list-style-type: none"> • Add fractions with unlike denominators. • Subtract fractions with unlike denominators. • Add mixed numbers with unlike denominators. • Subtract mixed numbers with unlike denominators. <p>5.NF.2</p> <ul style="list-style-type: none"> • Solve word problems with fractions. • Use benchmark fractions and number sense to check the answers to fraction problems. <p>• Key Concepts for Differentiation - See p. 7.</p>	<ul style="list-style-type: none"> • addend • Associative Property of Addition • benchmark fractions • common denominators • common factor • common multiple • Commutative Property of Addition • denominator • difference • equivalent fractions • estimate • fraction • fraction greater than 1 • fraction less than 1 • like denominators • lowest terms • minuend • mixed number • multiple • number line • numerator • prime number • reasonableness 	<ul style="list-style-type: none"> • simplest form • simplify • subtrahend • sum • unlike denominators
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Go Math! Utah Core Alignment	Unit of Study 6 - Additional Resources
<p>Lesson 6.1 5.NF.2</p> <p>Lesson 6.2 5.NF.2</p> <p>Lesson 6.3 5.NF.2</p> <p>Lesson 6.4 5.NF.1</p> <p>Lesson 6.5 5.NF.1</p> <p>Lesson 6.6 5.NF.1</p> <p>Lesson 6.7 5.NF.1</p> <p>Lesson 6.8 5.NF.1</p> <p>Lesson 6.9 5.NF.2</p> <p>Lesson 6.10 5.NF.1</p>	<p><u>Equivalent Fractions</u> VDW 7th Edition – pages 293-294; 301-306 Learn Alberta - Equivalent Fractions- Video Tutorial - http://www.learnalberta.ca/content/me5l/html/Math5.html?launch=true Education Place - Equivalent Fractions and Simplest Form - Student Tutorial - http://eduplace.com/cgi-bin/schtemplate.cgi?template=/math/hmm/models/tm_popup.shtml&grade=5&chapter=9&lesson=6&title=Equivalent+Fractions+and+Simplest+Form&tm=tmff0906e Illuminations - Equivalent Fractions - Interactive Applet - http://illuminations.nctm.org/ActivityDetail.aspx?ID=80 NLVM - Equivalent Fractions - Interactive Applet - http://nlvm.usu.edu/en/nav/frames_asid_105_g_3_t_1.html?from=category_g_3_t_1.html</p> <p><u>Addition and Subtraction of Fractions</u> VDW 7th Edition - pages 312-316 Education Place - Locate Points on a Grid - Animated Math Center - http://eduplace.com/kids/hmcam/animath/fractions_with_different_denominators.html Education Place - Add Fractions with Like Denominators - Student Tutorial - http://eduplace.com/cgi-bin/schtemplate.cgi?template=/math/hmm/models/tm_popup.shtml&grade=5&chapter=10&lesson=3&title=Add+Fractions+with+Unlike+Denominators&tm=tmff1003e NLVM - Adding Fractions - Interactive Applet - http://nlvm.usu.edu/en/nav/frames_asid_106_g_3_t_1.html?from=category_g_3_t_1.html YouTube - Adding Unlike Denominators - Video Tutorial - http://www.youtube.com/watch?v=UnMOM-kMbQ&feature=relmfu Ambleside Primary - Adding and Subtracting Fractions - Interactive Applet - http://www.amblesideprimary.com/ambleweb/fraction/fraction.htm</p> <p><u>Mixed Numbers</u> VDW 7th Edition - page 317 Scholastic Study Jams - Add & Subtract Mixed Numbers - Student Tutorial - http://studyjams.scholastic.com/studyjams/jams/math/fractions/add-sub-mixed-numbers.htm</p> <p><u>Literature</u> <u>Fractions and Decimals Made Easy</u> by Rebecca Wingard-Nelson <u>Fun Food Word Problems Starring Fractions</u> by Rebecca Wingard-Nelson <u>The Man Who Made Parks: The Story of Parkbuilder Frederick Law Olmsted</u> by Frieda Wishinsky <u>The Wishing Club</u> by Donna Jo Napoli</p>
<p>Assessment Options</p>	<ul style="list-style-type: none"> • Go Math! Assessment Options: Show What You Know Diagnostic Assessment; Mid-Chapter Checkpoint; Quick Checks; Portfolio Assessment; Chapter 6 Review/Test; Chapter 6 Test; Diagnostic Interview Assessment; Personal Math Trainer. • Daily/Weekly Formative Assessment Options: Exit Slips, Observation, Daily Work, Homework.

Unit of Study 7	5 th Grade	Quarter 3	Approx. 12 – 19 days	GSD Revised 6/1/17
Strand: Number and Operations – Fractions				5.NF
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 $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$ using a fraction model. 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, $(a/b) \times (c/d) = ac/bd$.)				
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.				
a. Compare 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. For example, the products of expressions such as 5×3 or $1/2 \times 3$ can be interpreted in terms of a quantity, three, and a scaling factor, five or $1/2$. Thus in addition to knowing that $5 \times 3 = 15$, they can also say that 5×3 is five times as big as three, without evaluating the product. Likewise they see $1/2 \times 3$ as half the size of three.				
b. Explain why multiplying a given number by a fraction greater than one results in a product greater than the given number (recognizing multiplication by whole numbers greater than one as a familiar case); explain why multiplying a given number by a fraction less than one results in a product smaller than the given number; and relating the principle of fraction equivalence. For example, $6/10 = (2 \times 3)/(2 \times 5)$. In general, $a/b = (n \times a)/(n \times b)$ has the effect of multiplying a/b by one.				
6. Solve real world problems involving multiplication of fractions and mixed numbers, for example, by using visual fraction models or equations to represent the problem.				
Math Content Objectives	Vocabulary	Vocabulary (cont.)		
<p>I can:</p> <p>5.NF.4a</p> <ul style="list-style-type: none"> Understand the meaning of multiplying a fraction by a whole number using a model and a story. Find the product of a fraction and a whole number. Understand the meaning of multiplying a fraction by a fraction using a model and a story. Find the product of a fraction and a fraction. <p>5.NF.4b</p> <ul style="list-style-type: none"> Find the area of a rectangle by tiling it with unit squares. Find the area of a rectangle by multiplying the side lengths. Find the area of a rectangle using tiling and multiplying to show that the product is the same. Correctly label rectangular areas as square units. 	<ul style="list-style-type: none"> area array common factor denominator equation equivalent fractions factor fraction greater than 1 fraction less than 1 mixed number Multiplicative Identity Property of 1 number line numerator prime number product rectangle scaling 	<ul style="list-style-type: none"> simplest form simplify square unit tiling whole numbers 		

Unit of Study 7 (continued)

Math Content Objectives

5.NF.5a

- ☛ Predict the size of a product by looking at the relationships between the factors.

5.NF.5b

- Explain what happens when multiplying a given number by a fraction greater than 1.
- Explain what happens when multiplying a given number by a fraction less than 1.
- ☛ Create an equivalent fraction by multiplying the numerator and denominator by the same number.
- Understand that a fraction with the same numerator and denominator is equal to 1.
- Understand that multiplying the numerator and denominator by the same number is the same as multiplying by 1.

5.NF.6

- ☛ Solve real world problems using multiplication of fractions and mixed numbers.
- Use fraction models and equations to represent multiplication of fractions and mixed numbers.

☛ Key Concepts for Differentiation - See p. 7.

Go Math! Utah Core Alignment	Unit of Study 7 - Additional Resources
<p>Lesson 7.1 5.NF.4a</p> <p>Lesson 7.2 5.NF.4a</p> <p>Lesson 7.3 5.NF.4a</p> <p>Lesson 7.4 5.NF.4b</p> <p>Lesson 7.5 5.NF.5a; 5.NF.5b</p> <p>Lesson 7.6 5.NF.4a</p> <p>Lesson 7.7 5.NF.4b</p> <p>Lesson 7.8 5.NF.5a; 5.NF.5b</p> <p>Lesson 7.9 5.NF.6</p> <p>Lesson 7.10 5.NF.5b</p>	<p><u>Multiplying Fractions</u> VDW 7th Edition - pages 317-321 NLVM - Rectangle Multiplication of Fractions - Interactive Applet - http://nlvm.usu.edu/en/nav/frames_asid_194_g_3_t_1.html?from=category_g_3_t_1.html Math Is Fun - Multiplying Fractions - Student Tutorial - http://www.mathsisfun.com/fractions_multiplication.html Math Playground - Multiplying Fractions - Interactive Applet - http://www.mathplayground.com/fractions_mult.html Math Is Fun - Multiplying Mixed Numbers - Student Tutorial - http://www.mathsisfun.com/mixed-fractions-multiply.html YouTube - Multiplying Mixed Numbers - Teacher Tutorial - http://www.youtube.com/watch?v=cDg5_Ft9SZs Math Play - Multiplying Fractions Millionaire Game - Game - http://www.math-play.com/Multiplying-Fractions-Millionaire/Multiplying-Fractions-Millionaire.html Math Solutions - "Introducing Multiplication of Fractions" Lesson - http://www.mathsolutions.com/documents/0-941355-64-0_L.pdf</p> <p><u>Literature</u> <u>Alice's Adventures in Wonderland</u> by Lewis Carroll <u>The Lion's Share</u> by Matthew McElligott <u>The Man Who Made Parks: The Story of Parkbuilder Frederick Law Olmsted</u> by Frieda Wishinsky <u>Multiplying Menace: The Revenge of Rumpelstiltskin</u> by Pam Calvert</p>
<p>Assessment Options</p>	<ul style="list-style-type: none"> • Go Math! Assessment Options: Show What You Know Diagnostic Assessment; Mid-Chapter Checkpoint; Quick Checks; Portfolio Assessment; Chapter 7 Review/Test; Chapter 7 Test; Diagnostic Interview Assessment; Personal Math Trainer. • Daily/Weekly Formative Assessment Options: Exit Slips, Observation, Daily Work, Homework.

Unit of Study 8	5 th Grade	Quarter 3	Approx. 7 – 14 days	GSD Revised 6/1/17
Strand: Number and Operations – Fractions				5.NF
Apply and extend previous understandings of multiplication and division to multiply and divide fractions.				
<p>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, through the use of visual fraction models or equations to represent the problem. For example, interpret $3/4$ as the result of dividing three by four, noting that $3/4$ multiplied by four equals three, and that when three wholes are shared equally among four people each person has a share of size $3/4$. If nine 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?</p>				
<p>7. Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. Use strategies to divide fractions by reasoning about the relationship between multiplication and division. Division of a fraction by a fraction is not a requirement at this grade.</p>				
<p>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 $(1/12) \times 4 = 1/3$.</p>				
<p>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 $20 \times (1/5) = 4$.</p>				
<p>c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, for example, by using visual fraction models and equations to represent the problem. For example, how much chocolate will each person get if three people share $1/2$ lb of chocolate equally? How many $1/3$-cup servings are in 2 cups of raisins?</p>				
Math Content Objectives	Vocabulary	Vocabulary (cont.)		
<p>I can:</p> <p>5.NF.3</p> <ul style="list-style-type: none"> Understand that a fraction bar can mean to divide. Find an equivalent whole number, mixed number, or decimal for a fraction by dividing the numerator by the denominator. Solve division word problems where the quotient is a fraction or a mixed number. <p>5.NF.7a</p> <ul style="list-style-type: none"> Create a story to model division of a fraction by a whole number. Use a fraction model to show how to divide a unit fraction by a whole number. Use multiplication to prove a division answer is correct. 	<ul style="list-style-type: none"> common factor decimal denominator dividend divisor equation equivalent fractions fraction fraction bar fraction greater than 1 fraction less than 1 mixed number number line numerator prime number quotient 	<ul style="list-style-type: none"> simplest form simplify unit fraction whole numbers 		

Unit of Study 8 (continued)

Math Content Objectives

5.NF.7b

- Create a story to model division of a whole number by a fraction.
- Use a fraction model to show how to divide a whole number by a unit fraction.
- Use multiplication to prove a division answer is correct.

5.NF.7c

- Use a fraction model to divide a unit fraction by a whole number in a real world problem.
- Use a fraction model to divide a whole number by a unit fraction in a real world problem.
- Use an equation to divide a unit fraction by a whole number in a real world problem.
- Use an equation to divide a whole number by a unit fraction in a real world problem.

◦ Key Concepts for Differentiation - See p. 7.

Go Math! Utah Core Alignment	Unit of Study 8 - Additional Resources
<p>Lesson 8.1 5.NF.7a; 5.NF.7b</p> <p>Lesson 8.2 5.NF.7b</p> <p>Lesson 8.3 5.NF.3</p> <p>Lesson 8.4 5.NF.7c</p> <p>Lesson 8.5 5.NF.7c</p>	<p><u>Division of Fractions with a Whole Number</u> VDW 7th Edition - pages 321-323 IXL - Divide Fractions by Whole Numbers - Assessment - http://www.ixl.com/math/grade-5/divide-fractions-by-whole-numbers IXL - Divide Whole Numbers by Fractions - Assessment - http://www.ixl.com/math/grade-5/divide-whole-numbers-by-fractions UEN - “Fruity O Fractions” Lesson - http://www.uen.org/Lessonplan/preview.cgi?LPid=6156</p> <p><u>Literature</u> <u>Full House: An Invitation to Fractions</u> by Dayle Ann Dodds <u>Jump, Kangaroo, Jump!</u> by Stuart J. Murphy <u>The Man Who Counted: A Collection of Mathematical Adventures</u> by Malba Tahan <u>The Multiplying Menace Divides</u> by Pam Calvert</p>
<p>Assessment Options</p>	<ul style="list-style-type: none"> • Go Math! Assessment Options: Show What You Know Diagnostic Assessment; Mid-Chapter Checkpoint; Quick Checks; Portfolio Assessment; Chapter 8 Review/Test; Chapter 8 Test; Diagnostic Interview Assessment; Performance Assessment Chapters 6-8; Personal Math Trainer. • Daily/Weekly Formative Assessment Options: Exit Slips, Observation, Daily Work, Homework.

Unit of Study 9	5 th Grade	Quarter 3	Approx. 9 – 17 days	GSD Revised 6/1/17
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Strand: Measurement and Data 5.MD

Represent and interpret data.
2. Make a line plot to display a data set of measurements in fractions of a unit (halves, quarters, eighths). Use operations on fractions for this grade to solve problems involving information presented in line plots. *For example, given graduated cylinders with different measures of liquid in each, find the amount of liquid each cylinder would contain if the total amount in all the cylinders were redistributed equally.*

Strand: Geometry 5.G

Graph points on the coordinate plane to solve real-world and mathematical problems in quadrant one.
1. Compose and understand the coordinate plane.
 a. 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 zero on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates.
 b. Using quadrant one on the coordinate plane, understand that the first number in a coordinate pair indicates how far to travel from the origin in the direction of the horizontal axis, and the second number indicates how far to travel in the direction of the vertical axis, with the convention that the names of the two axes and the coordinates correspond (*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.

Strand: Operations and Algebraic Thinking 5.OA

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 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.*

Math Content Objectives	Vocabulary	Vocabulary (cont.)
<p>I can:</p> <p><u>5.MD.2</u></p> <ul style="list-style-type: none"> • Make a line plot for a data set of fraction measurements. • Solve problems using information in a line plot with fraction measurements. <p><u>5.G.1</u></p> <ul style="list-style-type: none"> • Find and name the parts of a coordinate system. • Understand how to locate points in a coordinate system using an ordered pair. 	<ul style="list-style-type: none"> • axis (plural - axes) • bar graph • coordinate grid • coordinate plane • coordinate system • coordinates • corresponding terms • data • fraction • intersect • interval • line graph • line plot 	<ul style="list-style-type: none"> • number line • ordered pair • origin • perpendicular • plane • quadrant • scale • sequence • unit fraction • <i>x</i>-axis • <i>x</i>-coordinate • <i>y</i>-axis • <i>y</i>-coordinate

Unit of Study 9 (continued)

Math Content Objectives

5.G.2

- Graph points in the first quadrant of the coordinate plane to represent real world and mathematical problems.
- Use coordinate values of points to answer questions.

5.OA.3

- Generate numerical patterns using a rule.
 - Analyze two numerical patterns and identify relationships between corresponding terms.
 - Form ordered pairs made up of corresponding terms from two numerical patterns.
 - Graph ordered pairs on the coordinate plane.
- Key Concepts for Differentiation - See p. 7.

Go Math! Utah Core Alignment	Unit of Study 9 – Additional Resources
<u>Lesson 9.1</u> 5.MD.2	<p>General Line Plot Information VDW 7th Edition - page 446 IXL - Create Line Plots - Assessment - http://www.ixl.com/math/grade-6/create-line-plots</p>
<u>Lesson 9.2</u> 5.G.1	<p>LearnAlberta - Displaying Data - Video Tutorial - http://www.learnalberta.ca/content/me5l/html/math5.html?goLesson=21 IXL - Interpret Line Plots - Assessment - http://www.ixl.com/math/grade-5/interpret-line-plots</p>
<u>Lesson 9.3</u> 5.G.2	<p>Coordinate Plane – Graphing Points in Quadrant I VDW 7th Edition - pages 424-425</p>
<u>Lesson 9.4</u> 5.G.2	<p>NLVM - Counting All Pairs - Student Interactive- http://nlvm.usu.edu/en/nav/frames_asid_307_g_4_t_1.html?from=category_g_4_t_1.html IXL - Location and Relative Coordinates on Maps - Assessment - http://www.ixl.com/math/grade-5/location-and-relative-coordinates-on-maps IXL - Graph Points on a Coordinate Plane - Assessment - http://www.ixl.com/math/grade-5/graph-points-on-a-coordinate-plane</p>
<u>Lesson 9.5</u> 5.OA.3	<p>IXL - Coordinate Graphs Review - Assessment - http://www.ixl.com/math/grade-5/coordinate-graphs-review-whole-numbers-only UEN - “Mountain Rescue Mission” Lesson - http://www.uen.org/Lessonplan/preview.cgi?LPid=6168 LearnAlberta - Ordered Pairs - Video Tutorial - http://www.learnalberta.ca/content/me5l/html/Math5.html?launch=true</p>
<u>Lesson 9.6</u> 5.OA.3	<p>Education Place - Locate Points on a Grid - Student Tutorial - http://eduplace.com/cgi-bin/schtemplate.cgi?template=/math/hmm/models/tm_popup.shtml&grade=4&chapter=24&lesson=1&title=Locate+Points+on+a+Grid&tm=tmfe2401e Oswego - Billy Bug - Game - http://www.oswego.org/ocsd-web/games/BillyBug/bugcoord.html</p>
<u>Lesson 9.7</u> 5.OA.3	<p>Education Place - Graphing on a Coordinate Grid - Student Tutorial - http://eduplace.com/cgi-bin/schtemplate.cgi?template=/math/hmm/models/tm_popup.shtml&grade=2&chapter=4&lesson=4&title=Graphing+on+a+Coordinate+Grid&tm=tmfc0404e UEN - “Fly on the Ceiling” Lesson - http://www.uen.org/Lessonplan/preview.cgi?LPid=11237</p>
	<p>Numerical Patterns Teacher’s Domain - “Linking Number Patterns” Lesson - http://www.teachersdomain.org/resource/vtl07.math.algebra.pat.lpexponent/ Teacher’s Domain - “Finding the Common Beat” Lesson - http://www.teachersdomain.org/resource/vtl07.math.number.mul.commonbeat/ UEN - “Math Stations for Pattern Review” Lesson - http://www.uen.org/Lessonplan/preview.cgi?LPid=6164 UEN - “Table Settings” Lesson - http://www.uen.org/Lessonplan/preview.cgi?LPid=6159 UEN - “Eye Spy a Rule” Lesson - http://www.uen.org/Lessonplan/preview.cgi?LPid=15236 WVPT4Learning - Problem Solving: Looking for a Pattern - Video - http://www.wvpt4learning.org/component/jomtube/video/426.html</p>

Unit of Study 9 - Additional Resources - Continued

Line Graphs

[VDW 7th Edition – page 447](#)

IXL - Create Line Graphs - Assessment - <http://www.ixl.com/math/grade-5/create-line-graphs>

IXL - Interpret Line Graphs - Assessment - <http://www.ixl.com/math/grade-5/line-graphs>

Education Place - Bar Graphs and Line Graphs - Student Tutorial - http://eduplace.com/kids/hmcam/animath/bar_graphs_and_line_graphs.html

Mr. Nussbaum - Cool Graphing - Interactive Applet - <http://www.mrnussbaum.com/graph/line.htm>

Literature

The Fly on the Ceiling by Julie Glass

Two of Everything by Lily Toy Hong

X Marks the Spot! by Lucille Recht Penner

Assessment Options

- **Go Math! Assessment Options:** Show What You Know Diagnostic Assessment; Mid-Chapter Checkpoint; Quick Checks; Portfolio Assessment; Chapter 9 Review/Test; Chapter 9 Test; Diagnostic Interview Assessment; Personal Math Trainer.
- **Daily/Weekly Formative Assessment Options:** Exit Slips, Observation, Daily Work, Homework.

Unit of Study 10	5 th Grade	Quarter 4	Approx. 9 – 14 days	GSD Revised 6/1/17
Strand: Measurement and Data				5.MD

Convert like measurement units within a given measurement system.

1. Convert among different-sized standard measurement units within a given measurement system (for example., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real-world problems.

Math Content Objectives	Vocabulary	Vocabulary (cont.)
<p>I can:</p> <p>5.MD.1</p> <ul style="list-style-type: none"> ☛ Convert measurements within the customary system. ☛ Convert measurements within the metric system. <ul style="list-style-type: none"> • Solve multi-step real world problems that convert measurements within the customary system. • Solve multi-step real world problems that convert measurements within the metric system. <p>☛ Key Concepts for Differentiation - See p. 7.</p>	<ul style="list-style-type: none"> • capacity • centimeter • cup • customary system • decimeter • dekameter • elapsed time • fluid ounce • foot • gallon • gram • inch • kilogram • kilometer • liter • mass • meter • metric system • mile • milligram • milliliter • millimeter 	<ul style="list-style-type: none"> • ounce • pint • pound • quart • ton • weight • yard

Go Math! Utah Core Alignment	Unit of Study 10 - Additional Resources
<p><u>Lesson 10.1</u> 5.MD.1</p> <p><u>Lesson 10.2</u> 5.MD.1</p> <p><u>Lesson 10.3</u> 5.MD.1</p> <p><u>Lesson 10.4</u> 5.MD.1</p> <p><u>Lesson 10.5</u> 5.MD.1</p> <p><u>Lesson 10.6</u> 5.MD.1</p> <p><u>Lesson 10.7</u> 5.MD.1</p>	<p><u>Customary/Standard System</u> Easy Surf - Converter Applet - http://www.easysurf.cc/cnver13.htm#ctog1 BBC - Animal Weigh In - Game - http://www.bbc.co.uk/education/mathsf/shockwave/games/animal.html The Teacher Website - "Gallon Man" Lesson - http://www.theteacherwebsite.com/mrgallonmanproject-tools.pdf HMH School Publishers - Game - http://www.harcourtschool.com/activity/con_math/g04c24.html</p> <p><u>Metric System</u> Atlantis Ed. - Teacher Tutorial - http://atlantis.coe.uh.edu/archive/science/science_lessons/scienceles3/metric/metric.html UEN - "Make It Metric" Lesson - http://www.uen.org/Lessonplan/preview.cgi?LPid=21571 Purple Math - Teacher Tutorial - http://www.purplemath.com/modules/metric.htm Figure This - Problem Solving with Measurement - http://www.figurethis.org/challenges/c67/challenge.htm Math Playground - Student Tutorial Video - http://www.mathplayground.com/howto_Metric.html</p> <p><u>Literature</u> How Tall, How Short, How Far Away by David A. Adler Millions to Measure by David Schwartz</p>
<p>Assessment Options</p>	<ul style="list-style-type: none"> • Go Math! Assessment Options: Show What You Know Diagnostic Assessment; Mid-Chapter Checkpoint; Quick Checks; Portfolio Assessment; Chapter 10 Review/Test; Chapter 10 Test; Diagnostic Interview Assessment; Personal Math Trainer. • Daily/Weekly Formative Assessment Options: Exit Slips, Observation, Daily Work, Homework.

Unit of Study 11	5 th Grade	Quarter 4	Approx. 14 – 19 days	GSD Revised 6/1/17
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Strand: Measurement and Data 5.MD

Understand concepts of geometric measurement and volume, as well as how multiplication and addition relate to volume.

3. Recognize volume as an attribute of solid figures and understand concepts of volume measurement.

- A cube with side length one unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume.
- 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.

4. Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

5. Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.

- 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, for example, to represent the associative property of multiplication.
- 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.
- 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.

Strand: Geometry 5.G

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.**

Math Content Objectives	Vocabulary	
<p>I can:</p> <p>5.MD.3a</p> <ul style="list-style-type: none"> Understand how a unit cube can be used to measure volume. <p>5.MD.3b</p> <ul style="list-style-type: none"> Make solid figures with unit cubes that have no gaps or overlaps to find volume. Correctly label volume as cubic units. <p>5.MD.4</p> <ul style="list-style-type: none"> Count unit cubes that fill a solid figure to find volume. Correctly label volume as cubic units. 	<ul style="list-style-type: none"> acute triangle Associative Property of Multiplication attribute base of a solid figure congruent cube cubic unit decagon decagonal prism diagonal equiangular triangle equilateral triangle formula height heptagon hexagon hexagonal prism 	

Unit of Study 11 (continued)

Math Content Objectives	Vocabulary (cont.)	
<p>5.MD.5a</p> <ul style="list-style-type: none"> Find the volume of a right rectangular prism by packing it with unit cubes. Find the volume of a right rectangular prism by multiplying the edge lengths. Find the volume of a right rectangular prism by multiplying the area of the base by the height. → Find the volume of a right rectangular prism in more than one way and show that the volume is the same with each method. Apply the Associative Property of Multiplication to find the volume of a right rectangular prism. <p>5.MD.5b</p> <ul style="list-style-type: none"> Use the formula $V = l \times w \times h$ to find the volume of a right rectangular prism in real world and mathematical problems. Use the formula $V = B \times h$ to find the volume of a right rectangular prism in real world and mathematical problems. <p>5.MD.5c</p> <ul style="list-style-type: none"> Find the volume of a solid figure that is made of two right rectangular prisms in a real world problem. <p>5.G.3</p> <ul style="list-style-type: none"> Describe attributes of 2-dimensional figures. Explain how attributes of a category of 2-dimensional figures are shared by its subcategories. <p>5.G.4</p> <ul style="list-style-type: none"> → Classify 2-dimensional figures in a hierarchy based on properties. <p>→ Key Concepts for Differentiation - See p. 7.</p>	<ul style="list-style-type: none"> hierarchy isosceles triangle lateral face line of symmetry line symmetry nonagon obtuse triangle octagon octagonal prism parallel lines parallelogram pentagon pentagonal prism pentagonal pyramid perpendicular perpendicular lines polygon polyhedron prism pyramid quadrilateral rectangle regular polygon rhombus right rectangular prism right triangle scalene triangle solid figure square three-dimensional figure trapezoid two-dimensional figure unit cube variable volume 	

Go Math! Utah Core Alignment	Unit of Study 11 - Additional Resources
<p>Lesson 11.1 5.G.3</p> <p>Lesson 11.2 5.G.3; 5.G.4</p> <p>Lesson 11.3 5.G.4</p> <p>Lesson 11.4 5.G.3</p> <p>Lesson 11.5 5.MD.3</p> <p>Lesson 11.6 5.MD.3a</p> <p>Lesson 11.7 5.MD.3b; 5.MD.4</p> <p>Lesson 11.8 5.MD.4</p> <p>Lesson 11.9 5.MD.5a</p> <p>Lesson 11.10 5.MD.5b</p> <p>Lesson 11.11 5.MD.5b</p> <p>Lesson 11.12 5.MD.5c</p>	<p>2-Dimensional Figures</p> <p>Learn Alberta - Triangles - Video Tutorial - http://www.learnalberta.ca/content/me5/html/Math5.html?launch=true</p> <p>Learn Alberta - Polygons- Video Tutorial - http://www.learnalberta.ca/content/me5/html/Math5.html?launch=true</p> <p>IXL - Types of Triangles- Assessment - http://www.ixl.com/math/grade-5/types-of-triangles</p> <p>IXL - Regular and Irregular Polygons- Assessment - http://www.ixl.com/math/grade-5/regular-and-irregular-polygons</p> <p>Scholastic Study Jams - Classify Triangles - Student Tutorial - http://studyjams.scholastic.com/studyjams/jams/math/geometry/classify-triangles.htm</p> <p>Scholastic Study Jams - Classify Quadrilaterals - Student Tutorial - http://studyjams.scholastic.com/studyjams/jams/math/geometry/classify-quadrilaterals.htm</p> <p>Cut the Knot - Triangle Classification - Teacher Tutorial - http://www.cut-the-knot.org/triangle/Triangles.shtml</p> <p>5 Min Life Videopedia - Classify Triangles Based on Sides and Angles - Video Tutorial - http://www.5min.com/Video/How-to-Classify-Triangles-Based-on-Sides-and-Angles-275614619</p> <p>Volume of Right Rectangular Prisms</p> <p>VDW 7th Edition - page 395</p> <p>IXL - Volume of Figures Made of Unit Cubes - Assessment - http://www.ixl.com/math/grade-5/coordinate-graphs-review-whole-numbers-only</p> <p>IXL - Volume of Cubes and Rectangular Prisms - Assessment - http://www.ixl.com/math/grade-5/volume</p> <p>Learn Alberta - Volume - Video Tutorial - http://www.learnalberta.ca/content/me5/html/Math5.html?launch=true</p> <p>Scholastic Study Jams - Volume - Student Tutorial - http://studyjams.scholastic.com/studyjams/jams/math/measurement/volume.htm</p> <p>Illustrations - “Fill ‘er Up” Lesson - http://illuminations.nctm.org/LessonDetail.aspx?id=L831</p> <p>Illustrations - “Fishing for the Best Prism” Lesson - http://illuminations.nctm.org/LessonDetail.aspx?id=L793</p> <p>Illustrations - “Popcorn, Anyone?” Lesson - http://illuminations.nctm.org/LessonDetail.aspx?id=L797</p> <p>Learn Alberta - “Volume and Displacement” Lesson - http://www.learnalberta.ca/content/mesg/html/math6web/index.html?page=lessons&lesson=m6lessonshell15.swf</p> <p>Three-Dimensional Box - Working with Volume - Applet - http://mste.illinois.edu/users/carvell/3dbox/default.html</p> <p>MathOpen Reference - Interactive Model - http://www.mathopenref.com/cubevolume.html</p> <p>UEN - “Box It Up” Lesson - http://www.uen.org/Lessonplan/preview.cgi?LPid=21545</p> <p>Literature</p> <p><u>Counting on Frank</u> by Rod Clement</p> <p><u>The Greedy Triangle</u> by Marilyn Burns</p> <p><u>The Important Book</u> by Margaret Wise Brown</p> <p><u>Perimeter, Area and Volume: A Monster Book of Dimensions</u> by David A. Adler</p> <p><u>Shape Up: Fun with Triangles and Other Polygons</u> by David A. Adler</p>
<p>Assessment Options</p>	<ul style="list-style-type: none"> • Go Math! Assessment Options: Show What You Know Diagnostic Assessment; Mid-Chapter Checkpoint; Quick Checks; Portfolio Assessment; Chapter 11 Review/Test; Chapter 11 Test; Diagnostic Interview Assessment; Performance Assessment Chapters 9-11; Personal Math Trainer. • Daily/Weekly Formative Assessment Options: Exit Slips, Observation, Daily Work, Homework.

Appendix

General Website Resources

Common Core Standards - Official Website - www.corestandards.org

USOE - Utah Core Links - <http://www.schools.utah.gov/core/>

Arizona Academic Standards - Common Core Explanations and Examples -

<http://www.azed.gov/standards-practices/mathematics-standards/>

North Carolina Department of Public Instruction - Common Core Instructional Support Tools -

<http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/6th.pdf>

Utah Standards Academy - <http://www.schools.utah.gov/CURR/main/Core-Academy.aspx>

National Library of Virtual Manipulatives (NLVM) - <http://nlvm.usu.edu/>

Illuminations - <http://illuminations.nctm.org/>

UEN - <http://www.uen.org/>

Van de Walle – Blackline Masters - http://wps.ablongman.com/ab_vandewalle_math_6/54/13858/3547876.cw/index.html

Math Playground - <http://www.mathplayground.com/>

FunBrain - <http://www.funbrain.com/>

Ask Dr. Math - <http://mathforum.org/dr.math/>

Math.com - <http://www.math.com/>

Mathwire - <http://mathwire.com/>

Scholastic Study Jams - <http://studyjams.scholastic.com/studyjams/jams/math/index.htm>

Education Place - <http://eduplace.com/kids/hmm/>

K-5 Math Teaching Resources - <http://www.k-5mathteachingresources.com/%202nd-grade-number-activities.html>

Learn Zillion - <http://learnzillion.com/>

CCSSMath - <http://ccssmath.org/>

Book

VDW - Van de Walle, John A., Elementary and Middle School Mathematics, 7th Edition, Allyn & Bacon, Boston, 2010. ISBN-13: 978-0-205-57352-3