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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Granite
SCHOOL DISTRICT

How to Read the Grade Level Content Standards

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

Clusters are groups of related standards. Note that standards from different clusters may sometimes be closely related, because mathematics is a connected subject.

Domains are larger groups of related standards. Standards from different domains may sometimes be closely related.

Domain

Number and Operations in Base Ten 3.NBT

Use place value understanding and properties of operations to perform multi-digit arithmetic.

Standard

1. Use place value understanding to round whole numbers to the nearest 10 or 100.
2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
3. Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.

Cluster

Standards for Mathematical Practice

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important "processes and proficiencies" with longstanding importance in mathematics education. The first of these are the NCTM process standards of problem solving, reasoning and proof, communication, representation, and connections. The second are the strands of mathematical proficiency specified in the National Research Council's report *Adding It Up*: adaptive reasoning, strategic competence, conceptual understanding (comprehension of mathematical concepts, operations and relations), procedural fluency (skill in carrying out procedures flexibly, accurately, efficiently and appropriately), and productive disposition (habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one's own efficacy).

1. Make sense of problems and persevere in solving them.

Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, "Does this make sense?" They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.

2. Reason abstractly and quantitatively.

Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to *decontextualize*—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to *contextualize*, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.

3. Construct viable arguments and critique the reasoning of others.

Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is. Elementary students can construct arguments using concrete referents such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not generalized or made formal until later grades. Later, students learn to determine domains to which an argument applies. Students at all grades can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.

4. Model with mathematics.

Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.

5. Use appropriate tools strategically.

Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. For example, mathematically proficient high school students analyze graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. Mathematically proficient students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.

6. Attend to precision.

Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context. In the elementary grades, students give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions.

7. Look for and make use of structure.

Mathematically proficient students look closely to discern a pattern or structure. Young students, for example, might notice that three and seven more is the same amount as seven and three more, or they may sort a collection of shapes according to how many sides the shapes have. Later, students will see 7×8 equals the well remembered $7 \times 5 + 7 \times 3$, in preparation for learning about the distributive property. In the expression $x^2 + 9x + 14$, older students can see the 14 as 2×7 and the 9 as $2 + 7$. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. They also can step back for an overview and shift perspective. They can see complicated things, such as some algebraic expressions, as single objects or as being composed of several objects. For example, they can see $5 – 3(x – y)^2$ as 5 minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers x and y.

8. Look for and express regularity in repeated reasoning.

Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation $(y – 2)/(x – 1) = 3$. Noticing the regularity in the way terms cancel when expanding $(x – 1)(x + 1)$, $(x – 1)(x^2 + x + 1)$, and $(x – 1)(x^3 + x^2 + x + 1)$ might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.

5th Grade Mathematics Curriculum Map
Granite School District Scope and Sequence Overview

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

5th Grade
Instruction and Assessment* Schedule
2014-2015

It is expected that the units will be taught consecutively. The table below reflects which units are assessed on each benchmark. When possible, teachers are required to begin a new unit prior to the quarter in which it is being assessed.

Approx. Number of Days of Instruction	**Benchmark 1 Pretest 9/8 – 10/3**	**14**	**11**	**14**	**Benchmark 1 Posttest 10/13– 11/21**	**Benchmark 2 Pretest 10/13 – 11/21**	**10**	**10**	**12**	**12**	**Benchmark 2 Posttest 12/15 – 2/6**	**Benchmark 3 Pretest 12/15 – 2/6**	**7**	**9**	**9**	**14**	**Benchmark 3 Posttest 3/2 – 4/17**	**Prior to SAGE**	**SAGE 4/20 – 5/29**	**After SAGE**
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		SAGE Review		Getting Ready for Gr. 6 Unit
Assessment		Ch. 1 Test	Ch. 2 Test	Ch. 3 Test			Ch. 4 Test	Ch. 5 Test	Ch. 6 Test	Ch. 7 Test			Ch. 8 Test	Ch. 9 Test	Ch. 10 Test	Ch. 11 Test				

*Benchmark Tests are required by GSD. Additional assessment options are on each Unit of Study in the GSD maps.

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!, 2012 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.
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/depart/teachinglearning/curriculuminstruction/math/Pages/MathematicsVocabulary.aspx
Teacher's Resources and Notes	Teachers are encouraged to make notes of their own lesson ideas and resources that align with each Unit of Study.
Additional Resources	Each elementary school has a copy of Elementary and Middle School Mathematics, 7th 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: • 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; Soar to Success; and, Standards Practice Pages. 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. • Benchmark Assessments – These are cumulative tests for multiple Units of Study. These are to be given as a pretest and a posttest. Scores from the Benchmark Assessments are to be reported to the district. 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.

Unit of Study 1	5th Grade	Quarter 1	Approx. 14 days	GSD Revised 8/25/14

Domain: Number and Operations in Base Ten 5.NBT

Cluster: Understand the place value system.

Standard(s):

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.

Cluster: Perform operations with multi-digit whole numbers and with decimals to hundredths.

Standard(s):

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.

Domain: Operations and Algebraic Thinking 5.OA

Cluster: Write and interpret numerical expressions.

Standard(s):

1. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

2. Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. *For example, express the calculation "add 8 and 7, then multiply by 2" as 2 × (8 + 7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product.*

Math Content Objectives	Vocabulary	Teacher's Resources and Notes
I can: **<u>5.NBT.1</u>** - 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. **<u>5.NBT.2</u>** - 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.	• 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**	**Teacher's Resources and Notes**
5.NBT.2 (continued) • 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. **5.NBT.5** 🔑 Fluently multiply multi-digit whole numbers. • Multiply multi-digit whole numbers using the standard algorithm. **5.NBT.6** • 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. **5.OA.1** • 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.	• 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	

Unit of Study 1 (continued)

Math Content Objectives	Vocabulary	Teacher's Resources and Notes
5.OA.2 🔑 Write simple expressions that record calculations with numbers. • Interpret the meaning of numerical expressions. 🔑 Key Concepts for Differentiation - See p. 8.		
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.		

Unit of Study 1 (continued)		
Math Language Objectives	**Vocabulary**	**Teacher's Resources and Notes**
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.		

Go Math! Utah Core Alignment	Unit of Study 1 – Additional Resources
Lesson 1.1 5.NBT.1 **Lesson 1.2** 5.NBT.1 **Lesson 1.3** 5.NBT.6 **Lesson 1.4** 5.NBT.2 **Lesson 1.5** 5.NBT.2 **Lesson 1.6** 5.NBT.5 **Lesson 1.7** 5.NBT.5 **Lesson 1.8** 5.NBT.6 **Lesson 1.9** 5.NBT.6 **Lesson 1.10** 5.OA.2 **Lesson 1.11** 5.OA.1 **Lesson 1.12** 5.OA.1	**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.thtml&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 **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.thtml&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 **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

Go Math! Utah Core Alignment	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?l=0&ID1=AB.MATH.JR.NUMB&ID2=AB.MATH.JR.NUMB.INTE&lesson=html/object_interactives/order_of_operations/use_it.html **Illuminations - "Order of Operations Bingo" Lesson** - http://illuminations.nctm.org/LessonDetail.aspx?id=L730 **Math Goodies - Order of Operations - Tutorial and Practice Exercises** - http://www.mathgoodies.com/lessons/vol7/order_operations.html **Illuminations - Everything Balances Out in the End - Lesson** - http://illuminations.nctm.org/LessonDetail.aspx?ID=L643 **Illuminations - "Exploring Krypto" Lesson** - http://illuminations.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; Soar to Success; Standards Practice Pages. • **Daily/Weekly Formative Assessment Options**: Exit Slips, Observation, Daily Work, Homework.

Unit of Study 2	5th Grade	Quarter 1	Approx. 11 days	GSD Revised 8/25/14

Domain: Number and Operations in Base Ten 5.NBT

Cluster: Perform operations with multi-digit whole numbers and with decimals to hundredths.

Standard(s):

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.

Domain: Number and Operations – Fractions 5.NF

Cluster: Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

Standard(s):

3. Interpret a fraction as division of the numerator by the denominator (*a*/*b* = *a* ÷ *b*). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. *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?*

Math Content Objectives	Vocabulary	Teacher's Resources and Notes
I can: **5.NBT.6** 🔑 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. **5.NF.3** • 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. 🔑 Key Concepts for Differentiation - See p. 8.	• 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	

Unit of Study 2 (continued)		
Math Language Objectives	**Vocabulary**	**Teacher's Resources and Notes**
[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.		

Unit of Study 2 (continued)		
Math Language Objectives	**Vocabulary**	**Teacher's Resources and Notes**
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.		

Go Math! Utah Core Alignment	Unit of Study 2 – Additional Resources
Lesson 2.1 5.NBT.6 **Lesson 2.2** 5.NBT.6 **Lesson 2.3** 5.NBT.6 **Lesson 2.4** 5.NBT.6 **Lesson 2.5** 5.NBT.6 **Lesson 2.6** 5.NBT.6 **Lesson 2.7** 5.NF.3 **Lesson 2.8** 5.NBT.6 **Lesson 2.9** 5.NBT.6	**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.thtml&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 **Properties of Operations** **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 **Division with Fractional Remainders** **VDW 7th Edition - pages 157-158** **Illuminations - "Order of Operations Bingo" Lesson** - http://illuminations.nctm.org/LessonDetail.aspx?id=L818

	Unit of Study 2 - Additional Resources - Continued
	Literature Divide and Ride by Stuart J. Murphy Division Made Easy by Rebecca Wingard-Nelson The Doorbell Rang by Pat Hutchins Remainder of One by Elinor J. Pinczes
Assessment Options	• **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; Soar to Success; Standards Practice Pages. • **Daily/Weekly Formative Assessment Options**: Exit Slips, Observation, Daily Work, Homework.

Unit of Study 3	5th Grade	Quarter 1	Approx. 14 days	GSD Revised 8/25/14

Domain: Number and Operations in Base Ten 5.NBT

Cluster: Understand the place value system.

Standard(s):

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,

e.g., 347.392 = 3 × 100 + 4 ×10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000).

b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.

4. Use place value understanding to round decimals to any place.

Cluster: Perform operations with multi-digit whole numbers and with decimals to hundredths.

Standard(s):

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.

Math Content Objectives	Vocabulary	Teacher's Resources and Notes
I can: **5.NBT.1** - 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. **5.NBT.3a** - 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.	• 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	

Unit of Study 3 (continued)

Math Content Objectives	Vocabulary	Teacher's Resources and Notes
5.NBT.3b • Compare two decimals to thousandths. 🔑 Correctly use <, >, and = to record the comparison of two decimals. **5.NBT.4** • Round decimals to any place. **5.NBT.7** 🔑 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. 🔑 Key Concepts for Differentiation - See p. 8.	• minuend • place value • rounding • sequence • standard form • subtrahend • sum • tenth • tenths • term • thousandth • thousandths	
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.		

Unit of Study 3 (continued)		
Math Language Objectives	**Vocabulary**	**Teacher's Resources and Notes**
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.		

Go Math! Utah Core Alignment	Unit of Study 3 – Additional Resources
Lesson 3.1 5.NBT.1 **Lesson 3.2** 5.NBT.3a **Lesson 3.3** 5.NBT.3b **Lesson 3.4** 5.NBT.4 **Lesson 3.5** 5.NBT.7 **Lesson 3.6** 5.NBT.7 **Lesson 3.7** 5.NBT.7 **Lesson 3.8** 5.NBT.7 **Lesson 3.9** 5.NBT.7 **Lesson 3.10** 5.NBT.7 **Lesson 3.11** 5.NBT.7 **Lesson 3.12** 5.NBT.7	**Adding and Subtracting Decimals** **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_shortrailu/ **Scholastic Study Jams - Addition and Subtraction of Decimals - Student Tutorial** - http://studyjams.scholastic.com/studyjams/jams/math/decimals-percents/add-sub-decimals.htm **Comparing Decimals** **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/mathsfile/shockwave/games/laddergame.html **Decimal Squares - Rope Tug - Game** - http://www.decimalsquares.com/dsGames/games/tugowar.html **Rounding Decimals** **BBC - Rounding Off - Game** - http://www.bbc.co.uk/education/mathsfile/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

	Unit of Study 3 - Additional Resources - Continued
	Literature Do You Know Dewey? Exploring the Dewey Decimal System by Brian P. Cleary The Monster Who Did My Math by Danny Schnitzlein The $1.00 Word Riddle Book by Marilyn Burns The Phantom Tollbooth by Norton Juster (**See VDW 7th Edition - page 345**)
Assessment Options	• **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; Soar to Success; Standards Practice Pages. • **Daily/Weekly Formative Assessment Options**: Exit Slips, Observation, Daily Work, Homework.

Unit of Study 4	5th Grade	Quarters 1 & 2	Approx. 10 days	GSD Revised 8/25/14

Domain: Number and Operations in Base Ten 5.NBT

Cluster: Understand the place value system.

Standard(s):

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.

Cluster: Perform operations with multi-digit whole numbers and with decimals to hundredths.

Standard(s):

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.

Math Content Objectives	Vocabulary	Teacher's Resources and Notes
I can: **5.NBT.2** • 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.	• 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	

Unit of Study 4 (continued)		
Math Content Objectives	**Vocabulary**	**Teacher's Resources and Notes**
5.NBT.7 • 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. 🔑 Key Concepts for Differentiation - See p. 8.		
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.		

Unit of Study 4 (continued)		
Math Language Objectives	**Vocabulary**	**Teacher's Resources and Notes**
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.		

Go Math! Utah Core Alignment	Unit of Study 4 – Additional Resources
Lesson 4.1 5.NBT.2 **Lesson 4.2** 5.NBT.7 **Lesson 4.3** 5.NBT.2; 5.NBT.7 **Lesson 4.4** 5.NBT.2; 5.NBT.7 **Lesson 4.5** 5.NBT.7 **Lesson 4.6** 5.NBT.7 **Lesson 4.7** 5.NBT.2; 5.NBT.7 **Lesson 4.8** 5.NBT.2; 5.NBT.7	**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.thtml&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

	Unit of Study 4 - Additional Resources - Continued
	Literature Once Upon a Dime (A Math Adventure) by Nancy Kelly Allen
Assessment Options	• **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; Soar to Success; Standards Practice Pages. • **Daily/Weekly Formative Assessment Options**: Exit Slips, Observation, Daily Work, Homework.

Unit of Study 5	5th Grade	Quarter 2	Approx. 10 days	GSD Revised 8/25/14

Domain: Number and Operations in Base Ten 5.NBT

Cluster: Understand the place value system.

Standard(s):

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.

Cluster: Perform operations with multi-digit whole numbers and with decimals to hundredths.

Standard(s):

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.

Math Content Objectives	Vocabulary	Teacher's Resources and Notes
I can: **5.NBT.2** • 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.	• compatible numbers • decimal • decimal point • dividend • divisor • equivalent fractions • estimate • exponent • hundredth • hundredths • place value • powers of ten • quotient • remainder • tenth • tenths • thousandth • thousandths	

Unit of Study 5 (continued)

Math Content Objectives	Vocabulary	Teacher's Resources and Notes
5.NBT.7 • 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. 🔑 Key Concepts for Differentiation - See p. 8.		
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.		

Unit of Study 5 (continued)		
Math Language Objectives	**Vocabulary**	**Teacher's Resources and Notes**
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.		

Go Math! Utah Core Alignment	Unit of Study 5 – Additional Resources
Lesson 5.1 5.NBT.2 **Lesson 5.2** 5.NBT.7 **Lesson 5.3** 5.NBT.7 **Lesson 5.4** 5.NBT.2; 5.NBT.7 **Lesson 5.5** 5.NBT.7 **Lesson 5.6** 5.NBT.2; 5.NBT.7 **Lesson 5.7** 5.NBT.7 **Lesson 5.8** 5.NBT.7	**Division with Decimals** **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.thtml&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

	Unit of Study 5 - Additional Resources - Continued
	Literature
Assessment Options	• **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; Soar to Success; Performance Assessment Chapters 1-5; Standards Practice Pages. • **Daily/Weekly Formative Assessment Options**: Exit Slips, Observation, Daily Work, Homework.

Unit of Study 6	5th Grade	Quarter 2	Approx. 12 days	GSD Revised 8/25/14

Domain: Number and Operations – Fractions 5.NF

Cluster: Use equivalent fractions as a strategy to add and subtract fractions.

Standard(s):

1. Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. *For example, 2/3 + 5/4 = 8/12 + 15/12 = 23/12. (In general, a/b + c/d = (ad + bc)/bd.)*

2. Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. *For example, recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2.*

Math Content Objectives

I can:

5.NF.1

- Add fractions with unlike denominators.
- Subtract fractions with unlike denominators.
- Add mixed numbers with unlike denominators.
- Subtract mixed numbers with unlike denominators.

5.NF.2

- Solve word problems with fractions.
- Use benchmark fractions and number sense to check the answers to fraction problems.

Key Concepts for Differentiation - See p. 8.

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.

Vocabulary

- 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

Teacher's Resources and Notes

Unit of Study 6 (continued)		
Math Language Objectives	**Vocabulary**	**Teacher's Resources and Notes**
Reading Standards for Informational Text (cont.) • 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.	• simplest form • simplify • subtrahend • sum • unlike denominators	

Go Math! Utah Core Alignment	Unit of Study 6 – Additional Resources
Lesson 6.1 5.NF.2 **Lesson 6.2** 5.NF.2 **Lesson 6.3** 5.NF.2 **Lesson 6.4** 5.NF.1 **Lesson 6.5** 5.NF.1 **Lesson 6.6** 5.NF.1 **Lesson 6.7** 5.NF.1 **Lesson 6.8** 5.NF.1 **Lesson 6.9** 5.NF.2 **Lesson 6.10** 5.NF.1	**Equivalent Fractions** **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.thtml&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 **Addition and Subtraction of Fractions** **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.thtml&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 **Mixed Numbers** **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

	Unit of Study 6 - Additional Resources - Continued
	Literature Fractions and Decimals Made Easy by Rebecca Wingard-Nelson Fun Food Word Problems Starring Fractions by Rebecca Wingard-Nelson The Man Who Made Parks: The Story of Parkbuilder Frederick Law Olmsted by Frieda Wishinsky The Wishing Club by Donna Jo Napoli
Assessment Options	• **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; Soar to Success; Standards Practice Pages. • **Daily/Weekly Formative Assessment Options**: Exit Slips, Observation, Daily Work, Homework.

Unit of Study 7	5th Grade	Quarter 2	Approx. 12 days	GSD Revised 8/25/14

Domain: Number and Operations – Fractions 5.NF

Cluster: Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

Standard(s):

4. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.

a. Interpret the product (*a*/*b*) × *q* as *a* parts of a partition of *q* into *b* equal parts; equivalently, as the result of a sequence of operations *a* × *q* ÷ *b*. *For example, use a visual fraction model to show (2/3) × 4 = 8/3, and create a story context for this equation. Do the same with (2/3) × (4/5) = 8/15. (In general, (a/b) × (c/d) = ac/bd.)*

b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.

5. Interpret multiplication as scaling (resizing), by:

a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.

b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence *a*/*b* = (*n*×*a*)/(*n*×*b*) to the effect of multiplying *a*/*b* by 1.

6. Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

Math Content Objectives	Vocabulary	Teacher's Resources and Notes
I can: **<u>5.NF.4a</u>** • 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. **<u>5.NF.4b</u>** • 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.	• 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	

Unit of Study 7 (continued)

Math Content Objectives	Vocabulary	Teacher's Resources and Notes
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. 8.	• simplest form • simplify • square unit • tiling • whole numbers	
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.		

Unit of Study 7 (continued)		
Math Language Objectives	**Vocabulary**	**Teacher's Resources and Notes**
Reading Standards for Informational Text (cont.) • 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.		

Go Math! Utah Core Alignment	Unit of Study 7 – Additional Resources
Lesson 7.1 5.NF.4a **Lesson 7.2** 5.NF.4a **Lesson 7.3** 5.NF.4a **Lesson 7.4** 5.NF.4b **Lesson 7.5** 5.NF.5a; 5.NF.5b **Lesson 7.6** 5.NF.4a **Lesson 7.7** 5.NF.4b **Lesson 7.8** 5.NF.5a; 5.NF.5b **Lesson 7.9** 5.NF.6 **Lesson 7.10** 5.NF.5b	**Multiplying Fractions** **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

	Unit of Study 7 - Additional Resources - Continued
	Literature Alice's Adventures in Wonderland by Lewis Carroll The Lion's Share by Matthew McElligott The Man Who Made Parks: The Story of Parkbuilder Frederick Law Olmsted by Frieda Wishinsky Multiplying Menace: The Revenge of Rumpelstiltskin by Pam Calvert
Assessment Options	• **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; Soar to Success; Standards Practice Pages. • **Daily/Weekly Formative Assessment Options**: Exit Slips, Observation, Daily Work, Homework.

Unit of Study 8	5th Grade	Quarters 2 & 3	Approx. 7 days	GSD Revised 8/25/14

Domain: Number and Operations – Fractions 5.NF

Cluster: Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

Standard(s):

3. Interpret a fraction as division of the numerator by the denominator (*a*/*b* = *a* ÷ *b*). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. *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?*

7. Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.[1]

[1]Students able to multiply fractions in general can develop strategies to divide fractions in general, by reasoning about the relationship between multiplication and division. But division of a fraction by a fraction is not a requirement at this grade.

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) ÷ 4, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that (1/3) ÷ 4 = 1/12 because (1/12) × 4 = 1/3.*

b. Interpret division of a whole number by a unit fraction, and compute such quotients. *For example, create a story context for 4 ÷ (1/5), and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that 4 ÷ (1/5) = 20 because 20 × (1/5) = 4.*

c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, how much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?*

Math Content Objectives	Vocabulary	Teacher's Resources and Notes
I can: **5.NF.3** • 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. **5.NF.7a** • 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.	• 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	

Unit of Study 8 (continued)

Math Content Objectives	Vocabulary	Teacher's Resources and Notes
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. 8.	• simplest form • simplify • unit fraction • whole numbers	
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.		

Unit of Study 8 (continued)		
Math Language Objectives	**Vocabulary**	**Teacher's Resources and Notes**
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.		

Go Math! Utah Core Alignment	Unit of Study 8 – Additional Resources
Lesson 8.1 5.NF.7a; 5.NF.7b **Lesson 8.2** 5.NF.7b **Lesson 8.3** 5.NF.3 **Lesson 8.4** 5.NF.7c **Lesson 8.5** 5.NF.7c	**Division of Fractions with a Whole Number** **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

	Unit of Study 8 - Additional Resources - Continued
	Literature Full House: An Invitation to Fractions by Dayle Ann Dodds Jump, Kangaroo, Jump! by Stuart J. Murphy The Man Who Counted: A Collection of Mathematical Adventures by Malba Tahan The Multiplying Menace Divides by Pam Calvert
Assessment Options	• **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; Soar to Success; Performance Assessment Chapters 6-8; Standards Practice Pages. • **Daily/Weekly Formative Assessment Options**: Exit Slips, Observation, Daily Work, Homework.

Unit of Study 9	5th Grade	Quarter 3	Approx. 9 days	GSD Revised 8/25/14

Domain: Measurement and Data 5.MD

Cluster: Represent and interpret data.

Standard(s):

2. Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. *For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.*

Domain: Geometry 5.G

Cluster: Graph points on the coordinate plane to solve real-world and mathematical problems.

Standard(s):

1. Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., *x*-axis and *x*-coordinate, *y*-axis and *y*-coordinate).

2. Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

Domain: Operations and Algebraic Thinking 5.OA

Cluster: Analyze patterns and relationships.

Standard(s):

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	Teacher's Resources and Notes
I can: **<u>5.MD.2</u>** • Make a line plot for a data set of fraction measurements. • Solve problems using information in a line plot with fraction measurements.	• axis (plural - axes) • bar graph • coordinate grid • coordinate plane • coordinate system • coordinates • corresponding terms • data • fraction • intersect • interval • line graph	

Unit of Study 9 (continued)

Math Content Objectives	Vocabulary	Teacher's Resources and Notes
5.G.1 • Find and name the parts of a coordinate system. 🔑 Understand how to locate points in a coordinate system using an ordered pair. **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. 8.	• line plot • number line • ordered pair • origin • perpendicular • plane • quadrant • scale • sequence • unit fraction • *x*-axis • *x*-coordinate • *y*-axis • *y*-coordinate	
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.		

Unit of Study 9 (continued)		
Math Language Objectives	**Vocabulary**	**Teacher's Resources and Notes**
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.		

Go Math! Utah Core Alignment	Unit of Study 9 – Additional Resources
Lesson 9.1 5.MD.2 **Lesson 9.2** 5.G.1 **Lesson 9.3** 5.G.2 **Lesson 9.4** 5.G.2 **Lesson 9.5** 5.OA.3 **Lesson 9.6** 5.OA.3 **Lesson 9.7** 5.OA.3	**General Line Plot Information** **VDW 7th Edition - page 446** **IXL - Create Line Plots - Assessment** - http://www.ixl.com/math/grade-6/create-line-plots **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 **Coordinate Plane – Graphing Points in Quadrant I** **VDW 7th Edition - pages 424-425** **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 **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 **Education Place - Locate Points on a Grid - Student Tutorial** - http://eduplace.com/cgi-bin/schtemplate.cgi?template=/math/hmm/models/tm_popup.thtml&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 **Education Place - Graphing on a Coordinate Grid - Student Tutorial** - http://eduplace.com/cgi-bin/schtemplate.cgi?template=/math/hmm/models/tm_popup.thtml&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 **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

	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; Soar to Success; Standards Practice Pages. • **Daily/Weekly Formative Assessment Options**: Exit Slips, Observation, Daily Work, Homework.

Unit of Study 10	5th Grade	Quarter 3	Approx. 9 days	GSD Revised 8/25/14

Domain: Measurement and Data 5.MD

Cluster: Convert like measurement units within a given measurement system.

Standard(s):

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

Math Content Objectives

I can:

5.MD.1

- Convert measurements within the customary system.
- Convert measurements within the metric system.
- 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.

Key Concepts for Differentiation - See p. 8.

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.

Vocabulary

- 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
- ounce
- pint
- pound
- quart
- ton
- weight
- yard

Teacher's Resources and Notes

Unit of Study 10 (continued)		
Math Language Objectives	**Vocabulary**	**Teacher's Resources and Notes**
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.		

Go Math! Utah Core Alignment	Unit of Study 10 – Additional Resources
Lesson 10.1 5.MD.1 **Lesson 10.2** 5.MD.1 **Lesson 10.3** 5.MD.1 **Lesson 10.4** 5.MD.1 **Lesson 10.5** 5.MD.1 **Lesson 10.6** 5.MD.1 **Lesson 10.7** 5.MD.1	**Customary/Standard System** **Easy Surf - Converter Applet** - http://www.easysurf.cc/cnver13.htm#ctog1 **BBC - Animal Weigh In - Game** - http://www.bbc.co.uk/education/mathsfile/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 **Metric System** **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

	Unit of Study 10 - Additional Resources - Continued
	Literature How Tall, How Short, How Far Away by David A. Adler Millions to Measure by David Schwartz
Assessment Options	• **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; Soar to Success; Standards Practice Pages. • **Daily/Weekly Formative Assessment Options**: Exit Slips, Observation, Daily Work, Homework.

Unit of Study 11	5th Grade	Quarter 3	Approx. 14 days	GSD Revised 8/25/14

Domain: Measurement and Data 5.MD

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

Standard(s):

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

a. A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume.

b. A solid figure which can be packed without gaps or overlaps using *n* unit 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.

a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.

b. Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems.

c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.

Domain: Geometry 5.G

Cluster: Classify two-dimensional figures into categories based on their properties.

Standard(s):

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	Teacher's Resources and Notes
I can: **<u>5.MD.3a</u>** • Understand how a unit cube can be used to measure volume. **<u>5.MD.3b</u>** • Make solid figures with unit cubes that have no gaps or overlaps to find volume. • Correctly label volume as cubic units.	• 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	

Unit of Study 11 (continued)		
Math Content Objectives	**Vocabulary**	**Teacher's Resources and Notes**
5.MD.4 • Count unit cubes that fill a solid figure to find volume. • Correctly label volume as cubic units. **5.MD.5a** • 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. **5.MD.5b** • 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. **5.MD.5c** • Find the volume of a solid figure that is made of two right rectangular prisms in a real world problem.	• heptagon • hexagon • hexagonal prism • 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	

Unit of Study 11 (continued)

Math Content Objectives	Vocabulary	Teacher's Resources and Notes
5.G.3 • Describe attributes of 2-dimensional figures. • Explain how attributes of a category of 2-dimensional figures are shared by its subcategories. **5.G.4** 🔑 Classify 2-dimensional figures in a hierarchy based on properties. 🔑 Key Concepts for Differentiation - See p. 8.	• three-dimensional figure • trapezoid • two-dimensional figure • unit cube • variable • volume	
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.		

Unit of Study 11 (continued)		
Math Language Objectives	**Vocabulary**	**Teacher's Resources and Notes**
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.		

Go Math! Utah Core Alignment	Unit of Study 11 – Additional Resources
Lesson 11.1 5.G.3 **Lesson 11.2** 5.G.3; 5.G.4 **Lesson 11.3** 5.G.4 **Lesson 11.4** 5.G.3 **Lesson 11.5** 5.MD.3 **Lesson 11.6** 5.MD.3a **Lesson 11.7** 5.MD.3b; 5.MD.4 **Lesson 11.8** 5.MD.4 **Lesson 11.9** 5.MD.5a **Lesson 11.10** 5.MD.5b **Lesson 11.11** 5.MD.5b **Lesson 11.12** 5.MD.5c	**2-Dimensional Figures** **Learn Alberta - Triangles - Video Tutorial** - http://www.learnalberta.ca/content/me5l/html/Math5.html?launch=true **Learn Alberta - Polygons- Video Tutorial** - http://www.learnalberta.ca/content/me5l/html/Math5.html?launch=true **IXL - Types of Triangles- Assessment** - http://www.ixl.com/math/grade-5/types-of-triangles **IXL - Regular and Irregular Polygons- Assessment** - http://www.ixl.com/math/grade-5/regular-and-irregular-polygons **Scholastic Study Jams - Classify Triangles - Student Tutorial** - http://studyjams.scholastic.com/studyjams/jams/math/geometry/classify-triangles.htm **Scholastic Study Jams - Classify Quadrilaterals - Student Tutorial** - http://studyjams.scholastic.com/studyjams/jams/math/geometry/classify-quadrilaterals.htm **Cut the Knot - Triangle Classification - Teacher Tutorial** - http://www.cut-the-knot.org/triangle/Triangles.shtml **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 **Volume of Right Rectangular Prisms** **VDW 7th Edition - page 395** **IXL - Volume of Figures Made of Unit Cubes - Assessment** - http://www.ixl.com/math/grade-5/coordinate-graphs-review-whole-numbers-only **IXL - Volume of Cubes and Rectangular Prisms - Assessment** - http://www.ixl.com/math/grade-5/volume **Learn Alberta - Volume - Video Tutorial** - http://www.learnalberta.ca/content/me5l/html/Math5.html?launch=true **Scholastic Study Jams - Volume - Student Tutorial** - http://studyjams.scholastic.com/studyjams/jams/math/measurement/volume.htm **Illuminations - "Fill 'er Up" Lesson** - http://illuminations.nctm.org/LessonDetail.aspx?id=L831 **Illuminations - "Fishing for the Best Prism" Lesson** - http://illuminations.nctm.org/LessonDetail.aspx?id=L793 **Illuminations - "Popcorn, Anyone?" Lesson** - http://illuminations.nctm.org/LessonDetail.aspx?id=L797 **LearnAlberta - "Volume and Displacement" Lesson** - http://www.learnalberta.ca/content/mesg/html/math6web/index.html?page=lessons&lesson=m6lessonshell15.swf **Three-Dimensional Box - Working with Volume - Applet** - http://mste.illinois.edu/users/carvell/3dbox/default.html **MathOpen Reference - Interactive Model** - http://www.mathopenref.com/cubevolume.html **UEN - "Box It Up" Lesson** - http://www.uen.org/Lessonplan/preview.cgi?LPid=21545

	Unit of Study 11 - Additional Resources - Continued
	Literature Counting on Frank by Rod Clement The Greedy Triangle by Marilyn Burns The Important Book by Margaret Wise Brown Perimeter, Area and Volume: A Monster Book of Dimensions by David A. Adler Shape Up: Fun with Triangles and Other Polygons by David A. Adler
Assessment Options	• **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; Soar to Success; Performance Assessment Chapters 9-11; Standards Practice Pages. • **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