

GLE 0606.2.1 (NS.6.1) Understand and explain the procedures for multiplication and division of fractions, mixed numbers, and decimals. GLE 0606.3.3 (EE.6.1) Extend order of operations to include grouping symbols and exponents. GLE 0606.1.2 (NS.6.8 & RP.6.3.d) Apply and adapt a variety of appropriate strategies to problem solving, including estimation, and reasonableness of the solution. GLE 0606.2.2 (NS.6.1) Solve multi-step mathematical, contextual and verbal problems using fractions, mixed numbers, and decimals.

Knowledge and Skills	Checks for Understanding & Guiding Question(s)	Resources & Instructional Practices	Assessments	Differentiated Instruction	Technology & Additional Web-based Resources
<p>Weeks 1-3</p> <p>SPI 0606.1.2 Judge the reasonableness of the results of rational number estimates and/or computations. Estimating with Rational Numbers - Texas Instruments</p> <p>SPI 0606.2.3 Solve problems involving addition, subtraction, multiplication, and division of decimals. (NS.6.3) TI-73 Decimal operations Personal Tutor Lesson Personal Tutor Ch. 3 Lesson 8 Glencoe Word Problem Practice Book go to pages 27 and 30</p> <p>SPI 0606.2.1 Solve problems involving the multiplication and division of fractions. (NS 6.1) Glencoe Personal Tutor Lesson Ch. 5 Lesson 7 TI-73 Fractions with Visual Models: Multiply & divide TI-73 Multiplication In Disguise</p> <p>SPI 0606.2.4 Solve multi-step arithmetic problems using fractions, mixed numbers, and decimals. (NS 6.1 & NS.6.3) TI-73 Fraction Conversions: Making Cookies 4 Tab Book Foldable Roller Coaster & Lottery Tickets</p> <p>Vocabulary Compatible numbers</p>	<p>0606.1.2 Recognize when an estimate is more appropriate than an exact answer in a variety of problem situations.</p> <p>0606.1.3 Recognize errors generated by rounding. Rounding</p> <p>0606.2.2 Use area models to represent multiplication of fractions. (NS.6.1) Models for the Multiplication and Division of Fractions</p> <p>0606.2.3 Create and solve contextual problems that lead naturally to division of fractions. (NS.6.1) Daily Dose of Math word problem</p> <p>Guiding Question(s): Why is it sometimes better to estimate answers than to calculate exact answers?</p>	<p>Math Connects Course 1 Chapter 1 Multi-Part Lesson 1A(pp.25-29), 1C(pp32-35), ID Explore (pp. 36-37); Impact Math Unit A, Inv. 5(pp. 14-16); Multi-Part Lesson 2A(pp42-46), 2C(pp49-53), 2E(pp56-60). Chapter 2 Multi-Part Lesson 1A Explore (pp90-91) 1B (92-95), 1D(98-101), 1E(102-103).</p> <ul style="list-style-type: none"> 5-minute checks Spiral Review, pp. 41, 46, 53, 60 H.O.T. Problems, pp. 29, 35, 41, 45, 53, 95, 101. Test Practice, pp. 29, 35, 41, 46, 53, 60, 95, 101 Problem-Solving Investigation pp. 102 Chapter Study Guide and Review, pp. 78-80 & 136-137 Hands-On Activity Tools & Resources pp.1, 2, 3, 6, 14,15, 18; Hands-On Project p. 35; Multiply Mixed Numbers using manipulatives p. 37 Quick Review Math Handbook pp. 131-132, 133-134 Foldables used in each lesson Chapter Resource Masters Explore Lessons pp. 30-31, 36-37, 47-48, 54-55, 90-91 & 96-97 	<ul style="list-style-type: none"> Are You Ready for the Chapter? SE p. 24 & 88 Stop and Reflects pp. 41, 60 & 103 Self-Check Quiz Mid-Chapter Check, p. 61 Lesson Quizzes (CRM) Practice Chapter Test pp. 82 Preparing for Standardized Tests p. 83. Test Practice, pp. 84-85 Chapter Test (Chapter Resource Masters) Mastering the TCAP practice book – practice by SPI 	<p>Intervention:</p> <ul style="list-style-type: none"> Stanford math: 90 min./wk. Standard Math Browser Differentiated Instruction Options TE p 25c-25d, 42c-42d, 89c Destination Math Response to Intervention pp. 24A & 88A Reteach masters (CRM) Quick Checks Are You Ready for the Chapter? <p>Using graph paper, have students shade in appropriate numbers of squares to represent different decimal amounts of a given amount of squares.</p> <p>Enrichment:</p> <ul style="list-style-type: none"> Stanford Math: 90 min/wk. Enrichment Masters (CRM) Destination Math Differentiated Instruction Options TE p 25c-25d, 42c-42d, 89c Quick Checks Are You Ready for the Chapter? 	<ul style="list-style-type: none"> Teacher's Edition CD Graphing Calculators Destination Math Publisher's Website: http://connectED.mcgraw-hill.com Examview Pro NCTM Website: http://illuminations.nctm.org www.internet4classrooms.COM www.tnelc.org Dynamic Curriculum Gr. 6 Informational Math Site (Power Points/Games) www.education.ti.com Interactive Manipulatives: http://nlvm.usu.edu/ STEM Resources: http://www.stemsources.com http://softschools.com www.brightstorm.com http://exchange.smarttech.com www.discoveryeducation.com Stanford Math Browser www.insidemathematics.org

GLE 0606.2.1 (NS.6.1) Understand and explain the procedures for multiplication and division of fractions, mixed numbers, and decimals. GLE 0606.2.2 (NS.6.1) Solve multi-step mathematical, contextual and verbal problems using fractions, mixed numbers, and decimals. GLE 0606.2.3 (RP.6.1) Understand and use ratios, rates and percents.

Knowledge and Skill	Checks for Understanding & Guiding Question(s)	Resources & Instructional Practices	Assessments	Differentiated Instruction	Technology & Additional Web-based Resources
<p>Weeks 4-6</p> <p>SPI 0606.2.1 Solve problems involving the multiplication and division of fractions. (NS.6.1) Glencoe Personal Tutor Lesson Ch. 5 Lesson 7 Multiplying and Dividing Fractions Video Brain Pop TI-73 Fractions with Visual Models: Multiply & divide TI-73 Multiplication In Disguise</p> <p>SPI 0606.2.4 Solve multi-step arithmetic problems using fractions, mixed numbers, and decimals. (NS.6.1 & NS.6.3) TI-73 Fraction Conversions: Making Cookies Envelope Foldable</p> <p>SPI 0606.2.2 Solve problems involving the addition, subtraction, multiplication, and division of mixed numbers. (NS.6.3) TI-73 Fraction Operations - with Review and Quiz Intro to Fractions</p> <p>SPI 0606.2.6 Solve problems involving ratios, rates and percents. (RP.6.2, RP.6.3.a, RP.6.3.b, RP.6.3.c) Percent of a Number Quia - Ratios, Rates, and Percents TI-73 Smart Shoppers: Compare ratios</p> <p>Vocabulary Reciprocal, ratio, rate, unit rate, rate of change</p>	<p>0606.2.2 Use area models to represent multiplication of fractions. (NS.6.1) Models for the Multiplication and Division of Fractions</p> <p>0606.2.3 Create and solve contextual problems that lead naturally to division of fractions. (NS.6.1) Daily Dose of Math word problem</p> <p>0606.2.4 Understand ratio as a fraction used to compare two quantities by division. (RP.6.1)</p> <p>0606.2.5 Recognize a:b, a/b, and “a to b” as notations for ratios. (RP.6.1) Ratio and Proportion</p> <p>0606.2.6 Recognize common percentages as ratios based on fractions whose denominators are 2, 3, 4, 5, or 10. (RP.6.3.c) Table of Common Equivalences</p> <p>0606.2.7 Connect ratio and rate to multiplication and division. (RP.6.2, NS.6.1, RP.6.3.a)</p> <p>Which Tastes Juicier?</p> <p>Guiding Question:</p>	<p>Math Connects Course 1 Impact Math Unit B, Inv. 2 (pp. 27-29) Chapter 2 Multi-part lesson 2B(pp106-110), 2D(pp112-115), Explore 3A(pp. 117-119); Impact Math Unit B, Inv. 4 (pp. 34-37), 3D(pp126-129), 3E(130-133) Impact Math Unit D, Inv. 1 (pp. 73-76) Chapter 3 Multi-part lesson 1B(150-155), 1D(158-162).</p> <ul style="list-style-type: none"> 5-minute checks Spiral Review, pp. 110, 115, 123, 129, 133 More About Rates p. 162 H.O.T. Problems, pp. 109, 115, 123, 129, 133, 155, 161 Test Practice, pp. 110, 115, 123, 129, 133, 155, 162 Problem-Solving Investigation pp. 134 Chapter Study Guide and Review, pp. 136-139 & 188-189 Hands on Activity Tools Quick Review Math Handbook Foldables used in each lesson Explore Lessons pp. 104-105, 111, 117-119, 124-125, 148-149, 156-157 <p>Have students create their own 0 to 1 number lines for making comparisons of fractions, decimals, and percents. Divide the number line into twenty equal parts between 0 and 1, each mark representing $\frac{1}{20}$ or 5%. Students can locate fractions, decimals, and percents on the number line. This will help them visualize the relationships between the numbers. They can keep the number line in their notebooks for future reference.</p>	<ul style="list-style-type: none"> Are You Ready for the Chapter? SE p. 146 Stop and Reflect pp. 115, 133, 161 Self-Check Quiz Mid-Chapter Check, p. 116 Lesson Quizzes (CRM) Practice Chapter Test pp. 140 Preparing for Standardized Tests p. 141 Test Practice, pp. 142-143 Chapter Quizzes (CRB) Mastering the TCAP practice book – practice by SPI 	<p>Intervention:</p> <ul style="list-style-type: none"> Stanford math: 90 min./wk. Stanford Math Browser Differentiated Instructions Option TE pp. 104c-104d, 117c-117d, 147 c Destination Math Response to Intervention pp. 88A, 146A Reteach Masters (CRM) Quick Checks Are You Ready for the Chapter? <p>Fraction-number-line Good review or initial lesson Investigating fractions, decimals and percents go to pp. 11-14 for handouts Using physical models and visual representations, such as fraction bars, fraction circles and 10 by 10 grids meet a variety of learner needs. The tools make abstract concepts in mathematics concrete and comprehensible for many learners. Use discussion and writing to clarify and communicate understanding.</p> <p>Enrichment:</p> <ul style="list-style-type: none"> Stanford Math: 90 min/wk. Enrichment Masters (CRM) Destination Math Differentiated Instruction Options TE pp. 104c-104d, 117c-117d, 147 c Quick Checks Are You Ready for the Chapter? Chapter Projects <p>Mathematics Enrichment :: Ratios and Dilutions Mathematics Enrichment :: Mixing Lemonade</p>	<ul style="list-style-type: none"> Teacher’s Edition CD Graphing Calculators Destination Math Publisher’s Website: http://connectED.mcgraw-hill.com Examview Pro NCTM Website: http://illuminations.nctm.org www.internet4classrooms.COM www.tnelc.org www.education.ti.com Interactive Manipulatives: http://nlvm.usu.edu/ STEM Resources: http://www.stemsources.com Informational Math Site (Power Points/Games) Dynamic Curriculum Gr. 6 http://softschools.com www.brightstorm.com http://exchange.smarttech.com www.discoveryeducation.com Stanford Math Browser www.insidemathematics.org

GLE 0606.2.3 (RP.6.1) Understand and use ratios, rates and percents. GLE 0606.2.4 (RP.6.3) Understand and convert between fraction, decimal, and percent forms of rational numbers.

Knowledge and Skills	Checks for Understanding & Guiding Question(s)	Resources & Instructional Practices	Assessments	Differentiated Instruction	Technology & Additional Web-based Resources
<p>Weeks 7-9</p> <p>SPI 0606.2.6 Solve problems involving ratios, rates and percents. (RP.6.2, RP.6.3.a, RP.6.3.b, RP.6.3.c)</p> <p>SPI 0606.2.5 Transform numbers from one form to another (fractions, decimals, percents, and mixed numbers). Fraction Models TI-73 Relationship between fractions, decimals & percents Frac/Dec/Percents Equivalences Video TI-73 Fractions, decimals, percents relationship</p> <p>Vocabulary Ratio table, equivalent ratio, scaling, rational number, terminating decimal, repeating decimal</p>	<p>0606.2.4 Understand ratio as a fraction used to compare two quantities by division. (RP.6.1)</p> <p>0606.2.5 Recognize a:b, a/b, and “a to b” as notations for ratios. (RP.6.1)</p> <p>0606.2.6 Recognize common percentages as ratios based on fractions whose denominators are 2, 3, 4, 5, or 10. (RP.6.3.c)</p> <p>0606.2.7 Connect ratio and rate to multiplication and division. (RP.6.2, RP.6.3.a, NS.6.1)</p> <p>0606.2.8 Recognize that a terminating decimal equals a fraction with a denominator that is a power of ten.</p> <p>0606.2.9 Recognize that the decimal form of a rational number either terminates or repeats.</p> <p>Guiding Question(s): How are ratios and rates related to fractions? What is the difference between a ratio and a rate?</p>	<p>Math Connects Course 1</p> <p>Chapter 3 Multi-part lesson 2A(pp163-168) 2B(169), 3A(pp173-177), 3B (pp. 178-179); 3C(pp. 180-185)</p> <p>Chapter 4 Multi-part lesson 1A(pp200-203) & 1B(pp204-207)</p> <ul style="list-style-type: none"> 5-minute checks Spiral Review, pp. 168, 185, More about Decimals p. 207 H.O.T. Problems, pp. 168, 177, 184, 203, 207 Test Practice, pp. 168, 177, 185, 203, 207 Problem-Solving Investigation pp. 186 Chapter Study Guide and Review, pp. 188-191 & 256-257 Hands on Activity Tools & Resources p. 40 Quick review math handbooks Foldables used in each lesson Explore Lessons pp. 178-179 	<ul style="list-style-type: none"> Are You Ready for the Chapter? SE p. 146 Stop and Reflect pp. 171, 185, 206 Self-Check Quiz Mid-Chapter Check, p. 116 Lesson Quizzes (CRM) Practice Chapter Test pp. 140 Preparing for Standardized Tests p. 141 Test Practice, pp. 142-143 Chapter Test (CRM) Mastering the TCAP practice book – practice by SPI 	<p>Intervention:</p> <ul style="list-style-type: none"> Stanford math: 90 min./wk. Stanford Math Browser Differentiated Instruction Options TE pp. 163c-163d, 173c-173d, 199b-199c Destination Math Response to Intervention 146A, 198A Reteach Masters (CRM) Quick Checks Are You Ready for the Chapter? <p>Enrichment:</p> <ul style="list-style-type: none"> Stanford Math: 90 min/wk. Enrichment Masters (chapter research masters) Destination Math Differentiate Instruction Options TE pp. 163c-163d, 173c-173d, 199b-199c Quick Checks Are You Ready for the Chapter? Chapter Projects 	<ul style="list-style-type: none"> Teacher’s Edition CD Graphing Calculators Destination Math Publisher’s Website: http://connectED.mcgraw-hill.com NCTM Website: http://illuminations.nctm.org www.internet4classrooms.COM www.tnelc.org www.education.ti.com Interactive Manipulatives: http://nlvm.usu.edu/ STEM Resources: http://www.stemsources.com Informational Math Site (Power Points/Games) http://jc-schools.net/index.html http://softschools.com Examview Pro www.brightstorm.com http://exchange.smarttech.com www.discoveryeducation.com Stanford Math Browser www.insidemathematics.org

Common Core Focus Standard

The remainder of this quarter will address the Ratio and Proportion CCSS focus standard for sixth grade mathematics. In preparation for the CRA assessments tasks and lessons have been included to prepare students.

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Weeks 7-9

Focus Standard Cluster Heading: Understand ratio concepts and use ratio reasoning to solve problems

6.RP.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. *For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."*

Chapter 3, Lesson 1, Multi-Parts A & B, pages 148-155	Understanding Ratios with the Spy Guys	Concept of Ratio Open and click on the hyperlinks within the document
Games at Recess - Ratios and Rates	IXL Individual on-line Practice	The Golden Ratio
Candies Students will work with fractions and ratios		

6.RP.2 Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship. *For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is $\frac{3}{4}$ cup of flour for each cup of sugar." "We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger."*

Chapter 3, Lesson 1, Multi-Parts C & D, Pages 156-162	Impact Math Unit D Investigation 4 Comparison Shopping, pp. 81-83	Understanding Rational Numbers and Proportions	Rates Click on .Doc file and open
Rates in and of the Real World	Mangos for Sale	Price per Pound and Pounds per Dollar	What's your rate?

6.RP.3 Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

a. Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.

Chapter 3, Lesson 2, Multi-Parts A & B, Pages 163-169; Lesson 3A, pages 173-177	Impact Math Unit D, Investigations 2 & 3, pp. 76-81	tape diagrams, double number line diagrams, or equations.
Proportional Reasoning Click on .Doc file and open	Jim and Jesse's Money	Equivalent Ratios
Equivalent Ratios and Tables	Ratio Table Practice	Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios,

- b. Solve unit rate problems including those involving unit pricing and constant speed. *For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?*

Chapter 3, Lesson 1, Multi-Parts C & D, Pages 156-162	Running at a Constant Speed	Understanding Rational Numbers and Proportions	What's Your Rate
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- c. Find a percent of quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.

Additional Lesson 2, Page 78	Kendall's Vase - Tax	Finding a 10% Increase
Percent of Quantity Sample Problems Estimating the Percent of quantity	Solving Ratio percent with a pyramid guide	Grade 6 Task: Percent Cards Students find percent, decimal, and fraction equivalences

- d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

Additional Lesson 3, Page 787	Additional Lesson 12, page 828	Additional Lesson 13, Page 831
Converting Square Units	Measuring Up Unit – This unit has multiple lessons on converting from one measurement to another.	Ratios and Rates Unit – This PDF has multiple lessons for ratios, unit rates, percentages and conversions of measurement.

Common Core State Standards Crosswalk Correlations

NS.6.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. For example, create a story context for $(2/3) \div (3/4)$ and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that $(2/3) \div (3/4) = 8/9$ because $3/4$ of $8/9$ is $2/3$. (In general, $(a/b) \div (c/d) = ad/bc$.) How much chocolate will each person get if 3 people share $1/2$ lb of chocolate equally? How many $3/4$ -cup servings are in $2/3$ of a cup of yogurt? How wide is a rectangular strip of land with length $3/4$ mi and area $1/2$ square mi?

NS.6.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

NS.6.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

EE.6.1 Write and evaluate numerical expressions involving whole-number exponents.

RP.6.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, “The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak.” “For every vote candidate A received, candidate C received nearly three votes.”

RP.6.2 Understand ratio concepts and use ratio reasoning to solve problems. Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$ (b not equal to zero), and use rate language in the context of a ratio relationship. For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is $3/4$ cup of flour for each cup of sugar." "We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger." (Expectations for unit rates in this grade are limited to non-complex fractions.)

RP.6.3 Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

RP.6.3.a Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.

RP.6.3.b Solve unit rate problems including those involving unit pricing and constant speed. For example, If it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?

RP.6.3.c Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means $30/100$ times the quantity); solve problems involving finding the whole given a part and the percent.

RP.6.3.d Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.