Swedesboro-Woolwich School District's Mathematics Curriculum Guidance Document

GRADE 6– Unit 1

Mission Statement

The primary goal of the Swedesboro-Woolwich School District is to prepare each student with the real life skills needed to compete in a highly competitive global economy. This will be achieved by providing a comprehensive curriculum, the integration of technology, and the professional services of a competent and dedicated faculty, administration, and support staff.

Guiding this mission will be Federal mandates, including No Child Left Behind, the New Jersey Core Curriculum Content Standards, and local initiatives addressing the individual needs of our students as determined by the Board of Education. The diverse resources of the school district, which includes a caring PTO and active adult community, contribute to a quality school system. They serve an integral role in supporting positive learning experiences that motivate, challenge and inspire children to learn.

Unit/Module Overview

Unit One includes number systems and expressions encompassing (approximately) the first fifty-seven days. The main focus is evaluating numbers, fluent division including fractions, and writing and evaluating algebraic expressions with properties. Mathematical Practices from the box below will be connected to the daily lessons.

UNIT 1	Content Focus	Math Practices	Vocabulary

20 days	Whole Number Operations with Powers, Order of Operations, GCF, and LCM	1. Make sense of problems and persevere in solving them 2. Reason abstractly and quantitatively 3. Construct viable arguments and critique the reasoning of others 4. Model with Mathematics 5. Use appropriate tools strategically 6. Attend to precision 7. Look for and make use of structure 8. Look for and express regularity in repeated reasoning	• Base • Common factors • Common multiples • Evaluate • Exponent • Factor pair • Factor tree • Greatest common factor • Least common denominator • Least common multiple • Numerical expression • Order of operations • Perfect square • Power • Prime factorization • Venn diagram

20 days	Multiplying and Dividing Fractions and All Operations with Decimals	1. Make sense of problems and persevere in solving them 2. Reason abstractly and quantitatively 3. Construct viable arguments and critique the reasoning of others 4. Model with Mathematics 5. Use appropriate tools strategically 6. Attend to precision 7. Look for and make use of structure 8. Look for and express regularity in repeated reasoning	• Multiplicative inverse property • Reciprocals
28 days	Ratios with Tables, Comparing, and Graphing, Rates, Percents, and Converting Measurements	1. Make sense of problems and persevere in solving them 2. Reason abstractly and quantitatively 3. Construct viable arguments and critique the reasoning of others 4. Model with Mathematics 5. Use appropriate tools strategically 6. Attend to precision 7. Look for and make use of structure 8. Look for and express regularity in repeated reasoning	• Conversion Factor • Equivalent Rates • Equivalent Ratios • Metric Systems • Percent • Rate • Ratio • Unit Analysis • Unit Rate • US Customary System

Standards Covered in Current Unit/Module
Standards
MA.6.NS.A.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. MA.6.NS.B.2 Fluently divide multi-digit numbers using the standard algorithm. MA.6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation. MA.6.NS.B.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. MA.6.EE.A.1 Write and evaluate numerical expressions involving whole-number exponents. MA.6.EE.A.2 Write, read, and evaluate expressions in which letters stand for numbers. MA.6.EE.A.3 Apply the properties of operations to generate equivalent expressions. MA.6.EE.A.4 Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).

Content Focus	NJSLS Priority Standards	Learning Goals	Learning Targets
Compute fluently with multi-digit numbers and	6.NS.2 6.NS.3	Use the distributive property to express a sum of two whole numbers between one and 100 with a common	I can perform basic processes, such as · Divide multi-digit numbers using the

find common factors and multiples.	6.NS.4	factor as a multiple of a sum of two whole numbers with no common factor (6.NS.4)	standard algorithm (6.NS.2) · Multiply and divide multi-digit decimals using the standard algorithm (6.NS.3) · Find the greatest common factor (<100) and least common multiple (>12) for two whole numbers (6.NS.4)
Interpret and compute quotients of fractions, and solve real-world problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem	6.NS.1	Solve word problems involving the division of fractions by fractions (6.NS.1)	I can perform basic processes, such as · Interpret quotients of fractions (6.NS.1) · Compute quotients of fractions (6.NS.1)
Understand ratios, ratio tables, rates, and unit rates. Understand fraction and percent comparisons.	MA.6.6.RP.1 MA.6.6.RP.2 MA.6.6.RP.3	Solve real world and mathematical problems using ratios and unit rates (6.RP.3)	I can perform basic processes, such as · use ratio language to describe a ratio relationship between two quantities (6.RP.1) · Use rate language in the context of a ratio relationship (6.RP.2) · Recognize multiple equivalent representations of ratios

Weekly Learning Activities and Pacing Guide						
Unit 1	**Topic**	**Activity**	**Learning Goal**	**Learning Target**	**Resources**	**Assessments**

Weeks 1-4	Whole Number Operations with Powers, Order of Operations, GCF, and LCM	**Whole Group**: Ch. 1 /Lessons 1-6 (from Big Ideas Teachers Manual) Chapter Opener, Start Thinking! Warm-Up Introduce Vocabulary Words. Laurie's notes. Activity Journal with partners. Teachers can decide which pages will be done in groups and which pages will be done during independent work.) **Small Group**: Journal activities. Lesson problems from text or on-line digital book. Lesson tutorials from dynamic classroom. Differentiated lessons from dynamic classroom. Skills review handbook. **Independent Work**:	SWBAT identify key words that suggest an operation to be performed • SWBAT compute facts involving whole numbers • SWBAT write expressions as powers • SWBAT find values of powers • SWBAT evaluate numerical expressions with whole-number exponents • SWBAT use divisibility rules to find prime factorizations of numbers • SWBAT use diagrams to identify common factors • SWBAT find the greatest common factors • SWBAT use diagrams to identify common multiples • SWBAT find the least common multiple	I can: • divide multi-digit numbers using standard algorithm with speed and accuracy. • write numerical expressions involving whole number exponents. •evaluate numerical expressions involving whole number exponents. • solve order of operation problems that contain exponents. • identify factors of two whole numbers less than or equal to 100 and determine the GCM. • identify the multiples of two whole numbers less than or equal to 12 and determine the LCM. • apply the distributive property to rewrite addition problems by factoring out the GCF.	Big Ideas Chapter 1 National Library of Virtual Manipulatives Accelerated Math Corestandards.org NJCTL Chromebooks	After Lesson 1.3 – Quiz After Lesson 1.6 -Quiz After Chapter is completed - Chapter 1 Test

		Resources by the Chapter – Practice A and B Puzzle Time Student Text problems Enrichment and Extension Technology Connection				
Weeks 5-8	Multiplying and Dividing Fractions and All Operations with Decimals	**Whole Group**: Ch. 2 /Lessons 1-6 (from Big Ideas Teachers Manual) Chapter Opener, Start Thinking! Warm-Up Introduce Vocabulary Words. Laurie's notes. Activity Journal with partners. Teachers can decide which pages will be done in groups and which pages will be done during independent work.) **Small Group**: Journal activities. Lesson problems from text or on-line digital book.	SWBAT fluently divide multi-digit numbers using the standard algorithm • SWBAT develop an understanding of how to multiply fractions • SWBAT multiply fractions using a formal process • SWBAT develop an understanding of how to multiply a mixed number by a fraction • SWBAT use a formal rule to divide by a fraction • SWBAT develop an understanding of how to divide by a mixed number • SWBAT Use a formal rule to divide with mixed	I can: •compute quotients of fractions divided by fractions including mixed numbers. • interpret quotients of fractions. • figure out how to solve division problems with fractions in a real-world situation. • solve word problems involving division of fractions by fractions, by using models and equations. • fluently add, subtract, multiply, and divide multi-digit decimals using standard algorithm for each operation.	Big Ideas Chapter 2 National Library of Virtual Manipulatives Accelerated Math Corestandards.org NJCTL Chromebooks	After Lesson 2.3 – Quiz After Lesson 2.6 -Quiz After Chapter is completed - Chapter 2 Test

		Lesson tutorials from dynamic classroom. Differentiated lessons from dynamic classroom. Skills review handbook. **Independent Work**: Resources by the Chapter – Practice A and B Puzzle Time Student Text problems Enrichment and Extension Technology Connection	numbers • SWBAT use a formal rule to add and subtract decimals • SWBAT understand that to add and subtract decimals, you need a common place value • SWBAT use a formal rule to multiply decimals • SWBAT use a formal rule to find the product of a whole number and a decimal • SWBAT develop a visual understanding of decimal division • SWBAT develop an understanding of where to place the decimal point in the quotient of a division problem • SWBAT use a formal rule to divide decimals and divide a decimal by a whole number			
Weeks 9-11	Ratios with Tables, Comparing,	**Whole Group**: Ch. 3	SWBAT understand the concept of a ratio	I can: ● write ratio notation.	Big Ideas	After Lesson 3.4 – Quiz

	and Graphing, Rates, Percents, and Converting Measurements	/Lessons 1-7 (from Big Ideas Teachers Manual) Chapter Opener, Start Thinking! Warm-Up Introduce Vocabulary Words. Laurie's notes. Activity Journal with partners. Teachers can decide which pages will be done in groups and which pages will be done during independent work.) **Small Group**: Journal activities. Lesson problems from text or on-line digital book. Lesson tutorials from dynamic classroom. Differentiated lessons from dynamic classroom. Skills review handbook. **Independent Work:** Resources by the Chapter – Practice A and B	SWBAT use ratios to describe the relationship between two quantities SWBAT use ratio tables to find equivalent ratios SWBAT solve real-life problems SWBAT understand the concepts of rates and unit rates SWBAT write unit rates SWBAT compare ratios SWBAT compare unit rates SWBAT graph ordered pairs to compare ratios and rates SWBAT write percents as fractions SWBAT write fractions as percents SWBAT find percents of numbers SWBAT find the whole given the part and the percent SWBAT use conversion	● explain how order matters when writing a ratio. ● demonstrate how ratios can be simplified. ● demonstrate how ratios compare two quantities: the quantities do not have to be the same unit of measure. ● recognize that ratios appear in a variety of different contexts: part-to-whole, part-to-part, and rates. ● generalize that all ratios relate two quantities or measures within a given situation in a multiplication relationship. ● analyze context to determine which kind of ratio is represented. ● identify and calculate a unit rate. ● use appropriate math terminology as related to rate. ● analyze the relationship between a ratio a:b and a unit rate a/b where b is not equal to 0. ● make a table of equivalent ratios using whole numbers. ● find the missing values in a table of equivalent ratios. ● solve real-world problems involving rate and ratio.	NJ DOE Model Curriculum National Library of Virtual Manipulatives Accelerated Math Corestandards.org NJCTL Chromebooks	After Lesson 3.7 -Quiz After Chapter is completed - Chapter 3 Test Diagnostic 1

		Puzzle Time Student Text problems Enrichment and Extension Technology Connection	factors			

Materials and Resources	Possible Assessments
• Big Ideas - Big Ideas Learning LLC. 2014 www.bigideasmath.com • National Library of Virtual Manipulatives http://nlvm.usu.edu/en/nav/vlibrary.html • www.corestandards,org • http://www.njctl.org/courses/math/ • Chromebooks • http://www.sheppardsoftware.com/ • Accelerated Math • www.mathplayground.com/grade_6_games.html • www.mathantics.com	• Big Ideas Quiz 1.1-1.3 • Big Ideas Quiz 1.4-1.6 • Big Ideas Chapter 1 Assessment with Standards • Big Ideas Quiz 2.1-2.3 • Big Ideas Quiz 2.4-2.6 • Big Ideas Chapter 2 Assessment with Standards • Big Ideas Quiz 3.1-3.2 • Big Ideas Quiz 3.3-3.4 • Big Ideas Chapter 3 Assessment with Standards • S/W Grade 6 Benchmark 1 • Journal Writing • Exit Tickets • Response Boards • IXL, or other technology programs • http://www.njctl.org/2012/10/nj-model-curriculum-assessments-available-on-line/

Technology Integration	Interdisciplinary Connections	21st Century Life and Career Skills

• 8.1.8.A.1 Demonstrate knowledge of a real world problem using digital tools . • Use digital camera or webcam to record problem explanations. . • Foster skill practice using specific apps . TECH.8.1.8.A.1 Demonstrate knowledge of a real world problem using digital tools. TECH.8.1.8.A.2 Create a document (e.g., newsletter, reports, personalized learning plan, business letters or flyers) using one or more digital applications to be critiqued by professionals for usability. TECH.8.1.8.A.3 Use and/or develop a simulation that provides an environment to solve a real world problem or theory. TECH.8.1.8.A.4 Graph and calculate data within a spreadsheet and present a summary of the results. TECH.8.1.8.A.5 Create a database query, sort and create a report and describe the process, and explain the report results.	• Reading and Comprehension - involved for all word problems. • Science- Scientific Notation, decimals, multiplication, division, labels • Social Studies- foreign currency • Social Studies: determining elapsed time and reading time lines	• CRP2. Apply appropriate academic and technical skills. • CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

Link to Additional Components including Cross Curricular Connections, Accommodations, Assessments, Etc

ELA Enduring Understanding Statements