GRADE 6– PREALGEBRA 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 days. The main focus is performing all operations with integers and rational numbers, and solve one and two step equations with negative numbers. Mathematical Practices from the box below will be connected to the daily lessons.

UNIT 1	**Content Focus**	**Math Practices**	**Vocabulary**
15 days	Operations with integers	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	• absolute value • addititve inverse • additive inverse property • integers • opposites

15 days	Operations with rational numbers	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	● rational number ● repeating decimal ● terminating decimal

20 days	Expressions and Equations	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	• Addition Property of Equality • Division Property of Equality • equivalent equations • factoring an expression • like terms • linear expression • Mulitplication Property of Equality • simplest form (of an algebraic expression) • Subtraction Property of Equality

Standards Covered in Current Unit/Module
Standards
MA.7.NS.A.1 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. MA.7.NS.A.1a Describe situations in which opposite quantities combine to make 0. MA.7.NS.A.1b Understand $p + q$ as the number located a distance $\|q\|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.

MA.7.NS.A.1c Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.
MA.7.NS.A.1d Apply properties of operations as strategies to add and subtract rational numbers.
MA.7.NS.A.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.
MA.7.NS.A.2a Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (–1)(–1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.
MA.7.NS.A.2b Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number.If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts.
MA.7.NS.A.3 Solve real-world and mathematical problems involving the four operations with rational numbers.
MA.7.EE.A.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
MA.7.EE.B.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.
MA.7.EE.B.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.

Content Focus	NJSLS Priority Standards	Learning Goals	Learning Targets
Compute fluently with integers	7.NS.1a-d 7.NS.2a-c 7.NS.3	Solve real-world problems and mathematical problems involving addition, subtraction, multiplication, and division of integers with and without a number line.	I can perform basic processes, such as • RECOGNIZE the additive inverse property • DESCRIBE opposite quantities • DETERMINE absolute value • UNDERSTAND positive or negative direction on the number line • REPRESENT addition and subtraction with integers on a horizontal or vertical number line. • DESCRIBE and MODEL on the number line real world situations in which integers are combined • SHOW additive inverses • INTERPRET sums in context

			• CONVERT subtraction statements to equivalent addition statements using additive inverse property • DEVELOP rules for adding integers using absolute value short-cut • DEVELOP the argument that the distance between two points is the absolute value of the distance between their coordinates • ADD and SUBTRACT integers by using the concept of absolute value • APPLY absolute value principle in context • APPLY properties of operations as strategies to add and subtract integers • MULTIPLY and DIVIDE integers • UNDERSTAND/DEVELOP rules for multiplying signed numbers • UNDERSTAND every quotient of integers with non-zero divisor is a rational number EXPLAIN why a divisor cannot be zero • INTERPRET products & quotients in context • APPLY properties of operations as strategies to multiply and divide integers • SOLVE real world problems in context o APPLY properties of operations to calculate
Compute fluently with rational numbers	7.NS.1a-d 7.NS.2a-d 7.NS.3	Solve real-world problems and mathematical problems involving additons, subtraction, multiplication, and division of rational numbers with and without a number line.	I can perform basic processes, such as • IDENTIFY rational numbers • REPRESENT addition and subtraction with rational numbers on a horizontal or vertical number line. • DESCRIBE and MODEL on the number line real world situations in which rational numbers are combined • INTERPRET sums in context • UNDERSTAND rules for adding rational numbers using absolute value short-cut • DEVELOP the argument that the distance between two points is the absolute value of the distance between their coordinates • ADD and SUBTRACT rational numbers by using the concept of

			absolute value ● • APPLY absolute value principle in context ● • APPLY properties of operations as strategies to add and subtract rational numbers ● • MULTIPLY and DIVIDE rational numbers ● • UNDERSTAND rules for multiplying signed numbers ● • CONVERT rational numbers to terminating or repeating decimals ● • INTERPRET products & quotients in context ● • APPLY properties of operations as strategies to multiply and divide rational numbers ● • SOLVE real world problems in context ● o APPLY properties of operations to calculate
Apply and extend previous understandings of arithmetic to algebraic expressions	7.EE.1 7.EE.3 7.EE.4	· Apply properties of operations as strategies to add, subract, factor, and expand linear expressions with rational coefficients including addition and multiplicative inverse, distributive, associative, and commutative properties · Solve word problems leading to equations of the form px + q = r and p(x+q)=r	I can perform basic processes, such as ● • IDENTIFY the commutative, associative, distributive, additive, and multiplicative inverse property ● • USE variables ● • IDENTIFY inverse operations ● • CONSTRUCT simple equations ● • SOLVE problems in context ● o Simple equations ● • REASON about quantities ● • COMPARE solutions ● • APPLY properties of operations ● • COMBINE like terms using properties of operations ● • FACTOR Linear expressions with rational coefficients ● • EXPAND Linear expressions with rational coefficients ● • WRITE an expression in different forms ● • UNDERSTAND how rewriting an expression in different forms can show how the quantities in a problem are related

Weekly Learning Activities and Pacing Guide						
Unit 1	**Topic**	**Activity**	**Learning Goal**	**Learning Target**	**Resources**	**Assessments**
Weeks 1-3	Operations with integers	**Whole Group**: Ch. 1 /Lessons 1-5 (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 Puzzle Time Student Text problems Enrichment and Extension Technology Connection	SWBAT add, subtract, multiply and divide integers	● SEE LEARNING TARGET SECTION	Big Ideas Chapter 1 National Library of Virtual Manipulatives Accelerated Math Corestandards.org NJCTL Chromebooks	After Lesson 1.3 – Quiz After Lesson 1.5 -Quiz After Chapter is completed - Chapter 1 Test
Weeks 4-6	Operations with rational numbers	**Whole Group**: Ch. 2 /Lessons 1-4 (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.)	SWBAT add, subtract, multiply and divide rational numbers	● See learning targets section	Big Ideas Chapter 2 National Library of Virtual Manipulatives Accelerated Math Corestandards.org NJCTL Chromebooks	After Lesson 2.2 – Quiz After Lesson 2.4 -Quiz After Chapter is completed - Chapter 2 Test

		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 Puzzle Time Student Text problems Enrichment and Extension Technology Connection				
Weeks 7-10	Understanding Algebraic Expressions and solving equations	**Whole Group**: Ch. 3 /Lessons 1-5 (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 Puzzle Time Student Text problems Enrichment and Extension Technology Connection	SWBAT solve algebraic equations	• see learning targets section	Big Ideas Chapter 3 National Library of Virtual Manipulatives Accelerated Math Corestandards.org NJCTL Chromebooks	After Lesson 3.2 – Quiz After Lesson 3.5 -Quiz After Chapter is completed - Chapter 3 Test S/W Math Benchmark 1

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 1.4-1.5 • Big Ideas Chapter 1 Assessment with Standards • Big Ideas Quiz 2.1-2.2 • Big Ideas Quiz 2.3-2.4 • Big Ideas Chapter 2 Assessment with Standards • Big Ideas Quiz 3.1-3.2 • Big Ideas Quiz 3.3-3.5 • 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	• 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.

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.		

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

ELA Enduring Understanding Statements