Swedesboro-Woolwich School District's Mathematics Curriculum Guidance Document

GRADE 6– PREALGEBRA UNIT 3

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 Three includes geometry and statistics and probability encompassing (approximately) the last eighty days. The main focus is constructing scale drawings, finding perimeter and area of circles, calculating surface area and volume, and solving problems of probabiltiy and statistics. Mathematical Practices from the box below will be connected to the daily lessons.

UNIT 3	Content Focus	Math Practices	Vocabulary

20 days	Probability and statistics	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	· biased sample · compound event · dependent events · event · experiment · experimental probabliity · favorable outcome · Fundamental counting principle · independent events · outcomes · population · probablity · relative frequency · sample · sample space · simulation · theoretical probability · unbiased sample

20 days	Geometry of 2-D figures	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	· adjacent angles · complementary angles · congruent angles · congruent sides · kite · scale · scale drawing · scale factor · scale model · supplementary angles · vertical angles
20 days	Geometry of circles	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	· center of a circle · circle · circumference · composite figure · diameter of a circle · pi · radius of a circle · semicircle

20 days	Geometry of 3D figures	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	· cross section · lateral surface area · regular pyramid · slant height

Standards Covered in Current Unit/Module
Standards
MA.7.G.A.1 Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale. MA.7.G.A.2 Draw (with technology, with ruler and protractor, as well as freehand) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle. MA.7.G.A.3 Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids. MA.7.G.B.4 Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle. MA.7.G.B.5 Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure. MA.7.G.B.6 Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of

triangles, quadrilaterals, polygons, cubes, and right prisms.

MA.7.SP.A.1 Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.

MA.7.SP.A.2 Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.

MA.7.SP.B.3 Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability.

MA.7.SP.B.4 Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.

MA.7.SP.C.5 Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.

MA.7.SP.C.6 Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability.

MA.7.SP.C.7a Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events.

MA.7.SP.C.7b Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.

MA.7.SP.C.8a Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.

MA.7.SP.C.8b Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event.

MA.7.SP.C.8c Design and use a simulation to generate frequencies for compound events.

Content Focus	NJSLS Priority Standards	Learning Goals	Learning Targets
Probability and Statistics	7.SP.1 7.SP.2 7.SP.3 7.SP.4 7.SP.5 7.SP.6	SWBAT develop a probability model and use it to find probabilities of events and utilize organized lists, tables, tree diagrams, or simulation to find the probability of compound events SWBAT use random sampling to draw inferences about populations and compare two populations using measuring of center and	SEE LEARNING TARGETS

	7.SP.7 7.SP.8	variability	
Constructions and scale drawings	7.G.1 7.G.2 7.G.5	SWBAT understand and apply the facts about supplementary, complementary, vertical and adjacent angels and use the facts to find unknown angle in a figure SWBAT solve real-life and mathematical problems involving the area of 2D figures SWBAT solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale	SEE LEARNING TARGETS
Circles	7.G.4 7.G.6	SWBAT understand and be able to apply area and circumference formulas for circles	SEE LEARNING TARGETS
Surface Area and Volume	7.G.3 7.G.4 7.G.6	SWBAT solve real-world and mathematical problems involving the surface area of 3D shapes composed of triangles, quadrilaterals, polygons, and right prisms SWBAT solve real world problems involving volume of 3D shapes composed of cones, cylinders, spheres, cubes, and right prisms	SEE LEARNING TARGETS

Weekly Learning Activities and Pacing Guide						
Unit 3	**Topic**	**Activity**	**Learning Goal**	**Learning Target**	**Resources**	**Assessments**

Weeks 1-4	Probability and Statisctics	**Whole Group**: Ch. 10 /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 Puzzle Time Student Text problems Enrichment and Extension Technology Connection	SEE LEARNING GOALS	• SEE LEARNING TARGET SECTION •	Big Ideas Chapter 10 National Library of Virtual Manipulatives Accelerated Math Corestandards.org NJCTL Chromebooks	After Lesson 10.4 – Quiz After Lesson 1.7 -Quiz After Chapter is completed - Chapter 10 Test
Weeks 5-8	Constructions and scale drawings	**Whole Group**: Ch. 7 /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	SEE LEARNING GOALS	• See learning targets section	Big Ideas Chapter 7 National Library of Virtual Manipulatives Accelerated Math Corestandards.org NJCTL Chromebooks	After Lesson 7.3 – Quiz After Lesson 7.5 -Quiz After Chapter is completed - Chapter 7 Test

		Puzzle Time Student Text problems Enrichment and Extension Technology Connection				
Weeks 9-12	Circles and Area	**Whole Group**: Ch. 8 /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.) **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	SEE LEARNING GOALS	• see learning targets section	Big Ideas Chapter 8 National Library of Virtual Manipulatives Accelerated Math Corestandards.org NJCTL Chromebooks	After Lesson 8.2 – Quiz After Lesson 8.4 -Quiz After Chapter is completed - Chapter 8 Test

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/	• Big Ideas Quiz 10.1-10.5 • Big Ideas Quiz 10.6-10.7 • Big Ideas Chapter 10 Assessment with Standards • Big Ideas Quiz 7.1-7.3 • Big Ideas Quiz 7.4-7.5 • Big Ideas Chapter 7 Assessment with Standards • Big Ideas Quiz 8.1-8.2

• Accelerated Math • www.mathplayground.com/grade_6_games.html • www.mathantics.com	• Big Ideas Quiz 8.3-8.4 • Big Ideas Chapter 8 Assessment with Standards • Big Ideas Quiz 9.1-9.3 • Big Ideas Quiz 9.4-9.5 • Big Ideas Chapter 9 Assessment with standards • 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	• 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.

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