#### **GRADE 5 Advanced Math – 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**

Students will graph points on the coordinate plane to solve real-world and mathematical problems. Students will analyze patterns and relationships through ratio tables, and these patterns will be displayed in a line graph. Conversions of like measurement units within a given system will also be explored. Students will classify polygons into categories based on their properties. Classification of three-dimensional figures and volume of rectangular prisms will also be explored. Getting Ready lessons will cover concepts of sixth grade. This unit will be covered in 12 weeks.

Standards Covered in Current Unit/Module		
CCS Priority Standard Learning Goals Learning Targets		Learning Targets

MATH.5.NBT.A.1 [Standard] - 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.	SWBAT recognize that in a multi-digit number, a digit in the one place represents 10 times as much as it represents in theplace to its right and 1/10 of what it represents in the place to its left.	<ul> <li>I can explain that a digit in the one place is 10 times as much as the place to its right.</li> <li>I can explain that a digit in the one place is 1/10 as much as the place to its left.</li> </ul>
• MA.5.NBT.A.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.	SWBAT explain patterns in the number of zeros of the product when multiplying a number by powers of 10, explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10, and use whole number exponents to denote powers of 10.	<ul> <li>I can explain patterns when multiplying a number by 10.</li> <li>I can explain patterns in the placement of a decimal point when multiplying or dividing by a power of 10.</li> <li>I can use exponents to represent powers of 10.</li> </ul>
MA.5.NBT.A.3 Read, write, and compare decimals to the thousandths.	SWBAT read, write, and compare decimals to the thousandths.	<ul> <li>I can read decimals to the thousandths.</li> <li>I can write decimals to the thousandths.</li> <li>I can compare decimals to the thousandths.</li> </ul>
• MA.5.NBT.A3a Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, eg., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$ .	SWBAT read and write decimals to thousandths using base-ten numerals, number names, and expanded form.	<ul> <li>I can read and write decimals to the thousandths using base-ten numerals.</li> <li>I can read and write decimals to the thousandths using number names.</li> <li>I can read and write decimals to the thousandths using expanded form.</li> </ul>

• MA.5NBT.A3b Compare two decimals to thousandths based on meanings of the digits in each place using >, =, and < symbols to record the results of comparisons.	SWBAT compare two decimals to thousandths based on meaning of the digits in each place using>, =, and < symbols to record the results of comparisons.	<ul> <li>I can compare decimals to the thousandths place using comparison symbols.</li> </ul>
• MA.5NBT.A4 Use place value understanding to round decimals to any place.	SWBAT use place value understanding to round decimals to any place.	I can round decimals to any place.
MA.5NBT.B Perform operations with multi-digit whole numbers and with decimals to hundredths.	SWBAT perform operations with multi-digit whole numbers and with decimals to hundredths.	<ul> <li>I can add and subtract whole numbers.</li> <li>I can multiply and divide whole numbers.</li> <li>I can add and subtract decimals.</li> <li>I can multiply decimals.</li> <li>I can divide decimals.</li> </ul>
MA.5NBT.B.5 Fluently multiply multi-digit whole numbers using the standard algorithm.	SWBAT fluently multiply multi-digit whole numbers using the standard algorithm.	I can multiply whole numbers using the standard algorithm.
• MA.5.NBT.B.6 Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors using strategies based on place value and properties of operations.	SWBAT find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors using strategies based on place value and properties of operations.	<ul> <li>I can divide whole numbers by using place value and properties of operations.</li> </ul>

• MA.5.NBT.B.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.	SWBAT add, subtract, multiply, and divide decimals to hundredths using concrete models or drawings and strategies based on place value and properties of operations.	<ul> <li>I can add and subtract decimals using drawings/models, place value, and properties of operations.</li> <li>I can multiply decimals using drawings/models, place value, and properties of operations.</li> <li>I can divide decimals by using drawings/models, place value, and properties of operations.</li> </ul>
MATH.5.OA.A.1 [Standard] - Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.	SWBAT use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.	I can evaluate numerical expressions that contain parentheses and brackets.
• MA.5.OA.A.2 Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.	SWBAT write simple expressions that record calculations with numbers, and interpret numerical expression without evaluating them.	<ul> <li>I can write numerical expressions.</li> <li>I can interpret numerical expressions.</li> </ul>
MA.6.EE.A.1 Write and evaluate numerical expressions involving whole number exponents.	SWBAT write and evaluate numerical expressions involving whole number exponents.	<ul> <li>I can write numerical expressions that involve whole number exponents.</li> <li>I can interpret numerical expressions that involve whole number exponents.</li> </ul>
MA.6.EE.A.2 Write, read, and evaluate expressions in which letters stand for numbers.	<ul> <li>SWBAT write, read and evaluate expressions in which letters stand for numbers.</li> </ul>	<ul> <li>I can write expressions in which letters stand for numbers.</li> <li>I can read expressions in which letters stand for numbers.</li> <li>I can evaluate expressions in which letters stand for numbers.</li> </ul>

MA.6.NS.B.2 Fluently divide multi-digit numbers using the standard algorithm.	SWBAT fluently divide multi-digit numbers using the standard algorithm.	<ul> <li>I can fluently divide multi-digit numbers using the standard algorithm.</li> </ul>
MA.6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm.	SWBAT fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm.	<ul> <li>I can fluently add multi-digit decimals.</li> <li>I can fluently subtract multi-digit decimals.</li> <li>I can fluently multiply multi-digit decimals.</li> <li>I can fluently divide multi-digit decimals.</li> </ul>
MA.6.NS.B.4 I can find the greatest common factor of two or three whole numbers less than or equal to 100 and the least common multiple of two or three numbers less than or equal to 12.	SWBAT find the gcf of two or three whole numbers less than or equal to 100 and the lcm of two or three numbers less than or equal to 12.	<ul> <li>I can find the gcf of two or three whole numbers less than or equal to 100.</li> <li>I can find the lcm of two or three whole numbers less than or equal to 12.</li> </ul>

### **Essential Questions**

- How can a line plot help you find an average with data given in fractions?
- How can you identify and plot points on a coordinate grid? .
- How can you use a coordinate grid to display data collected in an experiment?
- How can you use a line graph to display and analyze real-world data?
- How can you identify a relationship between two numerical patterns?
- How can you use the strategy "solve a simpler problem" to help you solve a problem with patterns?
- How can you write and graph ordered pairs on a coordinate grid using two numerical patterns?
- How can you compare and convert customary units of length?
- How can you compare and convert customary units of capacity?
- How can you compare and convert customary units of weight?
- How can you solve multistep problems that include measurement conversions?
- How can you compare and convert metric units?
- How can you use the strategy "make a table" to help you solve problems about customary and metric conversions?
- How can you solve elapsed time problems by converting units of time?

- How can you identify and classify polygons?
- How can you classify triangles? .
- How can you classify and compare quadrilaterals? .
- How can you use the strategy "act it out" to approximate whether the sides of a figure are congruent?
- How can you identify, describe, and classify three-dimensional figures?
- What is a unit cube, and how can you use it to build a solid figure?
- How can you use unit cubes to find the volume of a rectangular prism?
- How can you use an everyday object to estimate the volume of a rectangular prism? .
- How can you find the volume of a rectangular prism?
- How can you use a formula to find the volume of a rectangular prism?
- How can you use the strategy "make a table" to compare different rectangular prisms with the same volume?
- How can you find the volume of rectangular prisms that are combined?
- How can you apply the properties of operations to generate equivalent expressions?
- How can you identify when two expressions are equivalent?

	Weekly Learning Activities and Pacing Guide			
Topic & # Days	NJ Standards	Critical Knowledge & Skills	Possible Resources & Activities	
Big Ideas Chapter 11 (8 days total)	5.M.A.1 5.M.A.1 5.M.A.1 5.M.A.1 5.M.A.1 5.DL.B.5 5.M.A.1	<ul> <li>Obj. We are learning to:         <ul> <li>Write lengths using equivalent metric measures.</li> </ul> </li> <li>Write masses and capacities using equivalent metric measures.</li> </ul> <li>Write lengths using equivalent customary measures.</li> <li>Write weights using equivalent customary measures.</li>	Activities: Chapter 11 Opener: Convert and Display Units of Measure Lesson 11.1: Length in Metric Units Lesson 11.2: Mass and Capacity in Metric Units Lesson 11.3: Length in Customary Units Lesson 11.4: Weight in Customary Units Lesson 11.5: Capacity in Customary Units Lesson 11.6: Make and Interpret Line Plots Lesson 11.7: Problem Solving: Measurement	
	5.DL.B.5	<ul> <li>Write capacities using equivalent customary measures.</li> <li>Make line plots and use them to solve problems.</li> </ul>	End of Chapter 11: Convert and Display Units of Measure End of Chapter 11: Convert and Display Units of Measure End of Chapter 11: Convert and Display Units of Measure	

		Solve multi-step word problems involving	Materials
		units of measure	Big Ideas Materials
			*Stop watches/timers
		Suggested Formative Assessment(s):	Place value charts (from millions to thousandths)
		<ul> <li>Big Ideas Grade 5 and 6 Assessments</li> </ul>	*Multiplication and division charts
		<ul> <li>Online Assessments</li> </ul>	*Manipulatives (cubes, money, coins, counters)
		<ul> <li>Lesson Checks</li> </ul>	Index cards
		Exit Tickets	*Paper (chart, graph, lined, and blank)
		Unit Project	Base ten blocks
		Assessment Guide	Calculators
		• iReady	Colored pencils, markers, crayons
			*Dry erase boards
			Google Classroom Math
			Iready Math
			Reflex Math
			SplashLearn
			Khan Academy
			Math Aids Place Value: http://www.math-aids.com/Place_Value/
			http://www.commoncoresheets.com/Values.php
			http://www.printable-math-worksheets.com/place-value-chart.html
Big Ideas	5.G.A.1	Obj. We are learning to:	Activities:
Chapter 12	5.G.A.2	<ul> <li>Identify and plot points in a coordinate</li> </ul>	Chapter 12 Opener: Patterns in the Coordinate Plane
(8 days total)	5.G.A.1	plane.	Lesson 12.1: Plot Points in a Coordinate Plane
	5.G.A.2	<ul> <li>Relate points and find distances in a</li> </ul>	Lesson 12.2: Relate Points in a Coordinate Plane
		coordinate plane	Lesson 12.3: Draw Polygons in a Coordinate Plane
	5.G.A.1	Draw and identify polygons in a coordinate	Lesson 12.4: Graph Data
	5.G.A.2	plane.	Lesson 12.5: Make and Interpret Line Graphs
	5.G.A.1	Graph and interpret data in a coordinate	Lesson 12.6: Numerical Patterns
	5.G.A.2	plane.	Lesson 12.7: Graph and Analyze Relationships
	5.G.A.1	Make and interpret line graphs.	
	5.G.A.2	Create and describe numerical patterns.	Materials
		Use a graph to describe the relationship	Big Ideas Materials
	5.OA.B.3	between two numerical patterns.	*Stop watches/timers
	5.OA.B.3		Place value charts (from millions to thousandths)
	5.G.A.2	Suggested Formative Assessment(s):	*Multiplication and division charts
		Big Ideas Grade 5 and 6 Assessments	*Manipulatives (cubes, money, coins, counters)
		Online Assessments	Index cards
		Lesson Checks	*Paper (chart, graph, lined, and blank)
1		Exit Tickets	Base ten blocks

		Unit Project	Calculators
		Assessment Guide	Colored pencils, markers, crayons
		iReady	*Dry erase boards
		Ineauy	Google Classroom Math
			Iready Math
			Reflex Math
			SplashLearn Man A and a second
			Khan Academy
			Math Aids Place Value: http://www.math-aids.com/Place_Value/
			http://www.commoncoresheets.com/Values.php
			http://www.printable-math-worksheets.com/place-value-chart.html
Grade 6	<u>6.RP</u> .A.1	Obj. We are learning to:	Activities:
Big Ideas	<u>6.RP</u> .A.3	Understand the concepts of ratios and	lesson 3.1
Chapter 3	6.RP.A.3	equivalent ratios.	lesson 3.2
( 6 days total)	6.RP.A.1	Use tape diagrams to model and solve ratio	lesson 3.3
		problems.	lesson 3.4
	<u>6.RP</u> .A.3	Use ratio tables to represent equivalent	lesson 3.5
	6.RP.A.3	ratios and solve ratio problems.	lesson 3.6
	6.RP.A.3a	Represent ratio relationships in a	
	6.RP.A.1	coordinate plane.	Materials
	6.RP.A.3	Understand the concept of a unit rate and	Big Ideas Materials
	6.RP.A.3a	solve rate problems.	*Stop watches/timers
		<ul> <li>Use ratio reasoning to convert units of</li> </ul>	Place value charts (from millions to thousandths)
	6.RP.A.3b	measure.	*Multiplication and division charts
	6.RP.A.3d		*Manipulatives (cubes, money, coins, counters)
		Suggested Formative Assessment(s):	Index cards
		Big Ideas Grade 5 and 6 Assessments	*Paper (chart, graph, lined, and blank)
		Online Assessments	Base ten blocks
		Lesson Checks	Calculators
		Exit Tickets	Colored pencils, markers, crayons
		Unit Project	*Dry erase boards
		Assessment Guide	Google Classroom Math
		<ul><li>iReady</li></ul>	Iready Math
			Reflex Math
			SplashLearn
			Khan Academy
			Math Aids Place Value: http://www.math-aids.com/Place_Value/
			http://www.commoncoresheets.com/Values.php
			http://www.printable-math-worksheets.com/place-value-chart.html

Big Ideas Chapter 13	5.M.B.2a	Obj. We are learning to:  Count to find volumes of solid figures.	Activities: Chapter 13 Opener: Understand Volume
(9 days total)	5.M.B.2b	<ul> <li>Find volumes of right rectangular prisms.</li> </ul>	Lesson 13.1: Understand the Concept of Volume
(9 days total)	5.M.B.3	<ul> <li>Use a formula to find volumes of</li> </ul>	Lesson 13.2: Find Volumes of Right Rectangular Prisms
	5.M.B.3	rectangular prisms.	Lesson 13.3: Apply the Volume Formula
	5.M.B.4a	<ul> <li>Find unknown dimensions of rectangular</li> </ul>	Lesson 13.4: Find Unknown Dimensions
	5.M.B.4a	prisms.	Lesson 13.5: Find Volumes of Composite Figures
		<ul> <li>Find volumes of composite figures.</li> </ul>	End of Chapter 13: Understand Volume
	5.M.B.4b	Find volumes of composite figures.	End of Chapter 13: Understand Volume
	5.M.B.4a	Suggested Formative Assessment(s):	End of Chapter 13: Understand Volume
	5.M.B.4b	Big Ideas Grade 5 and 6 Assessments	Life of Chapter 13. Officerstally volume
	5.M.B.4b	Online Assessments	Materials
	5.M.B.4c	Lesson Checks	Big Ideas Materials
	J.1V1.D.4C	Exit Tickets	*Stop watches/timers
		Unit Project	Place value charts (from millions to thousandths)
		Assessment Guide	*Multiplication and division charts
		• iReady	*Manipulatives (cubes, money, coins, counters)
		Meady	Index cards
			*Paper (chart, graph, lined, and blank)
			Base ten blocks
			Calculators
			Colored pencils, markers, crayons
			*Dry erase boards
			Google Classroom Math
			Iready Math
			Reflex Math
			SplashLearn
			Khan Academy
			Math Aids Place Value: http://www.math-aids.com/Place_Value/
			http://www.commoncoresheets.com/Values.php
			http://www.printable-math-worksheets.com/place-value-chart.html
Big Ideas	5.G.B.4	Obj. We are learning to:	Activities:
Chapter 14	5.G.B.3	Classify triangles by their angles and their	Chapter 14 Opener: Classify Two-Dimensional Shapes
(4 days total)		sides.	Lesson 14.1: Classify Triangles
` , , , , , , , , , , , , , , , , , ,	5.G.B.4	<ul> <li>Classify quadrilaterals by their angles and</li> </ul>	Lesson 14.2: Classify Quadrilaterals
	5.G.B.3	their sides.	Lesson 14.3: Relate Quadrilaterals
	5.G.B.4	<ul> <li>Understand the hierarchy of quadrilaterals.</li> </ul>	End of Chapter 14: Classify Two-Dimensional Shapes
			End of Chapter 14: Classify Two-Dimensional Shapes
		Suggested Formative Assessment(s):	

		<ul> <li>Big Ideas Grade 5 and 6 Assessments</li> <li>Online Assessments</li> <li>Lesson Checks</li> <li>Exit Tickets</li> <li>Unit Project</li> <li>Assessment Guide</li> <li>iReady</li> </ul>	Materials Big Ideas Materials *Stop watches/timers Place value charts (from millions to thousandths) *Multiplication and division charts *Manipulatives (cubes, money, coins, counters) Index cards *Paper (chart, graph, lined, and blank) Base ten blocks Calculators Colored pencils, markers, crayons *Dry erase boards Google Classroom Math Iready Math Reflex Math SplashLearn Khan Academy Math Aids Place Value: http://www.math-aids.com/Place_Value/ http://www.commoncoresheets.com/Values.php
Grade 6 Big Ideas Chapter 4 (6 days total)	6.RP.A.3c 6.RP.A.3c 6.NS.C.7a 6.NS.C.7b 6.RP.A.3	Obj. We are learning to:  Write percents as fractions and fractions as percents.  Write percents as decimals and decimals as percents.  Compare and order fractions, decimals, and percents.  Find a percent of a quantity and solve percent problems.  Suggested Formative Assessment(s):  Big Ideas Grade 5 and 6 Assessments  Online Assessments  Lesson Checks  Exit Tickets  Unit Project  Assessment Guide  iReady	http://www.printable-math-worksheets.com/place-value-chart.html  Activities: lesson 4.1 lesson 4.2 lesson 4.3 lesson 4.4  Materials Big Ideas Materials *Stop watches/timers Place value charts (from millions to thousandths) *Multiplication and division charts *Manipulatives (cubes, money, coins, counters) Index cards *Paper (chart, graph, lined, and blank) Base ten blocks Calculators Colored pencils, markers, crayons *Dry erase boards Google Classroom Math

Grade 6 Big Ideas Chapter 5 (6 days total)	6.EE.A.2b 6.EE.A.3 6.EE.A.4 6.NS.B.4 6.EE.A.2b 6.EE.A.3 A 6.EE.A.4 I	Obj. We are learning to:  Identify parts of an expression using mathematical terms  Write expressions that record operations with numbers and with letters standing for numbers.  Apply the properties of operations to generate equivalent expressions.  Identify when two expressions are equivalent  Use the Distributive Property to factor numerical expressions.  Identify the greatest common factor of terms including variables.  Use the Distributive Property to factor algebraic expressions.  Interpret factored expressions  Suggested Formative Assessment(s):  Big Ideas Grade 5 and 6 Assessments  Online Assessments  Lesson Checks  Exit Tickets	Iready Math Reflex Math SplashLearn Khan Academy Math Aids Place Value: http://www.math-aids.com/Place_Value/ http://www.commoncoresheets.com/Values.php http://www.printable-math-worksheets.com/place-value-chart.html  Activities: Lesson 5.1 Lesson 5.2 Lesson 5.3 and lesson 5.4 Lesson 5.5  Materials Big Ideas Materials *Stop watches/timers Place value charts (from millions to thousandths) *Multiplication and division charts *Manipulatives (cubes, money, coins, counters) Index cards *Paper (chart, graph, lined, and blank) Base ten blocks Calculators Colored pencils, markers, crayons *Dry erase boards Google Classroom Math Iready Math Reflex Math SplashLearn Khan Academy

Technology Integration	Interdisciplinary Connections	21st Century Life and Career Skills
<ul> <li>Math Playground -         http://www.mathplayground.com/grade_5_games         .html</li> <li>Khan Academy -         http:www.//khanacademy.org/math/cc-fifth-grad         e-math</li> <li>Illustrative Mathematics -         http:www.//illustrativemathematics.org</li> <li>Prodigy - http:www.//prodigygame.com</li> <li>Learn Zillion - http:www.//learnzillion.com</li> <li>aaamath - http:www.//aaamath.com/grade5.html</li> <li>Math is Fun - https://www.mathsisfun.com/</li> <li>Sheppard Software -         http://www.sheppardsoftware.com/math.htm</li> <li>Adapted Mind - http://adaptedmind.com</li> <li>Internet 4 Classrooms -         http://internet4classrooms.com</li> <li>Academic Skill Builders -         http://arcademicskillbuilders.com</li> <li>Math Play - http://www.math-play.com</li> <li>Class K-12 - https://www.classk12.com</li> <li>Figure This -         https://figurethis.nctm.org/challenges/math_inde         x.htm</li> <li>Freckle Education -         https://www.freckle.com</li> <li>Greg Tang Math - https://gregtangmath.com</li> <li>8.1.5.A.1 Select and use the appropriate digital tools         and resources to accomplish a variety of tasks including</li> </ul>	Next Gen Science Standards (5. Structure and Properties of Matter Unit have connections to 5.NBT.A.1; 5.NF.B.7; 5.MD.A.1; 5.MD.C.3; 5.MD.C.4)  Next Gen Science Standards (5. Matter and Energy in Organisms and Ecosystems Unit have connections to 5.MD.A.1)	<ul> <li>CRP2. Apply appropriate academic and technical skills.</li> <li>CRP4. Communicate clearly and effectively and with reason.</li> <li>CRP6. Demonstrate creativity and innovation.</li> <li>CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.</li> <li>CRP11. Use technology to enhance productivity.</li> </ul>

solving problems.	
• 8.1.5.A.3 Use a graphic organizer to organize information about problem or issue.	
• 8.1.5.A.4 Graph data using a spreadsheet, analyze and produce a report that explains the analysis of the data.	
• 8.1.5.A.5 Create and use a database to answer basic questions.	
• 8.1.5.A.6 Export data from a database into a spreadsheet; analyze and produce a report that explains the analysis of the data.	

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

**ELA Enduring Understanding Statements**