Teacher: Stefanie W. Ritchey	Course: PSSA 8 Math	Grade Levels: 8
	Month/Topic: Data Analysis	
Content/Big Ideas	Data can be modeled and used to make inferences Analyzing and predicting from data Box & Whisker Plots Stem & Leaf Plots Probability	
Essential Questions	What does it mean to analyze numerical quantities? How can data be organized and represented to provide insight into the relationship between quantities? How does the type of data influence the choice of display? How can probability and data analysis be used to make predictions?	
Concepts	Data and Distributions Frequency Tables Independent Compound Probability Dependent Compound Probability	
Competencies	Understand vocabulary Construct, analyze, and interpret graphs Use frequencies to analyze patterns of association seen in bivariate data Make predictions from data Calculate probability of certain scenarios Use probability to make predictions	
Standards/Benchmarks	CC.2.4.8.B.1 CC.2.4.8.B.2 M08.D-S.1.1.1 M08.D-S.1.1.2 M08.D-S.1.1.3 M08.D-S.1.2.1	
Activities & Assessments	Bellringers Classwork/Guided Practice with White Boards Paired Classwork/Think-Pair-Share Individual Practice/Guided Practice Class Discussion/Interaction Study Island Practice/Flashcards Boardwork	

Teacher: Stefanie W. Ritchey	Course: PSSA 8 Math	Grade Levels: 8
	Month/Topic: Exponent Laws	
Content/Big Ideas	Product of Powers Property Quotient of Powers Property Power of a Power Property Power of a Product Property Power of a Quotient Property Zero Exponent Negative Exponents	
Essential Questions	How do exponents affect a mathematical expression? How does working with exponents simplify the process of simplifying mathematical expressions? What circumstances exist when negative exponents are not possible?	
Concepts	Exponent Properties	
Competencies	Understand vocabulary Analyze relationships between exponential expressions Use exponent laws to simplify mathematical expressions	
Standards/Benchmarks	CC.2.2.8.B.1 M08.B.E.1.1.1 M08.B.E.1.1.3 M08.B.E.1.1.4	
Activities & Assessments	Bellringers Classwork/Guided Practice with White Boards Paired Classwork/Think-Pair-Share Individual Practice/Guided Practice Class Discussion/Interaction Study Island Practice/Flashcards Boardwork	

Teacher: Stefanie W. Ritchey	Course: PSSA 8 Math	Grade Levels: 8
	Month/Topic: Pythagorean Theorem	
Content/Big Ideas	Triangles and their Relationships Relationship between sides and angles in Right Triangles Applications of Pythagorean Theorem Distance between 2 points	
Essential Questions	What aspects are true in all triangles? What is the relationship between the hypotenuse and legs within a right triangle? Why is the Pythagorean Theorem essential in certain real life applications and situations? How are spatial relationships, including shape and dimension, used to draw, construct, model, and represent real situations or solve problems? How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving? How can geometric properties and theorems be used to describe, model, and analyze situations?	
Concepts	Triangles & the Pythagorean Theorem	
Competencies	Understand vocabulary Analyze relationships within all triangles Analyze relationships within right triangles Calculate missing lengths in right triangles Calculate the distance between 2 points Apply the Pythagorean Theorem and its converse to solve mathematical problems in two and three dimensions.	
Standards/Benchmarks	CC.2.3.8.A.3 M08.C-G.2.1.1 M08.C-G.2.1.2 M08.C-G.2.1.3	

Activities & Assessments	Bellringers Classwork/Guided Practice with White Boards Paired Classwork/Think-Pair-Share Individual Practice/Guided Practice Class Discussion/Interaction Study Island Practice/Flashcards Boardwork

Teacher: Stefanie W. Ritchey	Course: PSSA 8 Math	Grade Levels: 8
	Month/Topic: Real Number Relationships	
Content/Big Ideas	Square & Cube Roots Scientific Notation Rational Numbers Irrational Numbers	
Essential Questions	What does a radicand tell us about whether a number is rational or irrational? How is mathematics used to quantify, compare, represent, and model numbers? How are relationships represented mathematically? What does it mean to estimate or analyze numerical quantities? How can patterns be used to describe relationships in mathematical situations?	
Concepts	Rational Numbers and Irrational Numbers	
Competencies	Understand vocabulary Distinguish between rational and irrational numbers using their properties. Convert a terminating or repeating decimal into a rational number. Use rational approximations of irrational numbers to compare the size of irrational numbers. Order and compare rational and irrational values. Analyze and apply values in Scientific Notation	
Standards/Benchmarks	CC.2.1.8.E.1 CC.2.1.8.E.4 M08.A-N.1.1.1 M08.A-N.1.1.2 M08.A-N.1.1.3 M08.A-N.1.1.4 M08.A-N.1.1.5	

Activities & Assessments	Bellringers Classwork/Guided Practice with White Boards Paired Classwork/Think-Pair-Share Individual Practice/Guided Practice Class Discussion/Interaction Study Island Practice/Flashcards Boardwork

Teacher: Stefanie W. Ritchey	Course: PSSA 8 Math	Grade Levels: 8
	Month/Topic: Transformations	
Content/Big Ideas	Translations Reflections Rotations Dilations Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization	
Essential Questions	What relationship exists in all rigid transformations? What relationships exists between the ordered pairs of an original shape and its transformed image? How do similar and congruent shapes tie to transformations? How are spatial relationships, including shape and dimension, used to draw, construct, model, and represent real situations or solve problems? How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving?	
Concepts	Rigid Transformations & Dilations	
Competencies	Understand vocabulary Compare & contrast rigid transformations Compare & contract dilations Analyze and create transformations	
Standards/Benchmarks	M08.C.G.1.1.2 M08.C.G.1.1.1 M08.C.G.1.1.3	
Activities & Assessments	Bellringers Classwork/Guided Practice with White Boards Paired Classwork/Think-Pair-Share Individual Practice/Guided Practice Class Discussion/Interaction Study Island Practice/Flashcards Boardwork	

Teacher: Stefanie W. Ritchey	Course: PSSA 8 Math	Grade Levels: 8
	Month/Topic: Volume of 3D Solids	
Content/Big Ideas	Volume calculations and applications Patterns exhibit relationships that can be extended, described, and generalized Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization	
Essential Questions	How does the volume of a cylinder and cone relate? How are spatial relationships, including shape and dimension, used to draw, construct, model, and represent real situations or solve problems? How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving?	
Concepts	Cylinders, Cones, and Spheres	
Competencies	Understand vocabulary Compare & contrast volume formulas for 3D solids Calculate the volume of cylinders, cones & spheres Solve equations Apply concepts of volume of cylinders, cones, and spheres to solve real-world and mathematical problems.	
Standards/Benchmarks	CC.2.3.8.A.1 M08.C.G.3.1.1	
Activities & Assessments	Bellringers Classwork/Guided Practice with White Boards Paired Classwork/Think-Pair-Share Individual Practice/Guided Practice Class Discussion/Interaction Study Island Practice/Flashcards Boardwork	

Teacher: Stefanie W. Ritchey	Course: PSSA 8 Math	Grade Levels: 8
	Month/Topic: Radical Expressions	
Content/Big Ideas	Simplification of Radical Expressions using factors & primes Addition & Subtraction of Radical Expressions Rationalizing Radical Expressions	
Essential Questions	What role does a radicand play in simplifying radical expressions? How do prime values aid in the simplification of radical expressions? What do like terms look like in radical expressions?	
Concepts	Simplification of radical expressions	
Competencies	Understand vocabulary Analyze radical expressions Apply prime numbers to simplifying radical expressions Simplification of Radical Expressions	
Standards/Benchmarks	A.1.1.1.1.2 A.1.1.1.3.1	
Activities & Assessments	Bellringers Classwork/Guided Practice with White Boards Paired Classwork/Think-Pair-Share Individual Practice/Guided Practice Class Discussion/Interaction Study Island Practice/Flashcards Boardwork	