Math 8 Course Outline 2016 - 2017

Unit 1: Exponents and Scientific Notation

1. Introduction to Exponents
2. Multiplying Powers
3. Dividing Powers
4. Zero and negative e
5. Introduction to Exponents
6. Multiplying Powers
7. Dividing Powers
8. Zero and negative exponents
9. Comparing Exponential expressions
10. Scientific Notation – converting
11. Scientific Notation – ordering and evaluating
12. Scientific Notation - operations

Unit 2: Transformations 1: Congruence

1. Translation
2. Line reflections
3. Rotations (90°, 180°, 270°,360°)
4. Given 2 congruent figures, describe sequence or transformations.
5. Analyze compositions of transformations

Unit 3: Angles and Parallel Lines

1. Straight angles, supplementary, complementary, vertical
2. Sum of the interior angles of a triangle
3. Angles formed by parallel lines cut by a transversal (protractor)
4. Solve for x and find angle measurements with algebraic expressions
5. Sums of interior and exterior angles of polygons

Unit 4: Transformations 2: Proportional Relationships and Similar Triangles

1. Definition of Similarity
2. Properties of Dilations
3. Calculate unite rate
4. Solving proportions
5. Graph proportional relationships
6. Compare proportional relationships
    - Graphs/Equations
    - Multiple ways
7. Similar Triangles

Unit 5: Linear Expressions & Solving Linear Equations

1. Translating Expressions and expressions
2. Identifying linear expressions and equations
3. Solve Simple equations, checking solutions
4. Solve multistep equations
    - Distributive property
    - Variables on both side
5. Solve multi-step with rational coefficients (fractions)
6. Solutions: One, Infinite or No

Unit 6: Functions

1. Identifying, domain range
2. Analyzing and Comparing
3. Rates of change/Slope
4. Writing Function Rules
5. Identifying linear and non-linear

Unit 7: Linear Functions

1. Modeling Linear Relationships (Writing Equation)
2. Graphing a line
3. Slope intercept
4. Function Stories
5. Increasing/Decreasing functions

Unit 8: Systems of Linear Equations

1. Rewrite equations in slope-intercept form
2. Solve Graphically. Solutions can be one, infinite or no.
3. Solve algebraically using elimination and substitution
4. Determine if a point is a solution

Unit 9: Functions in Geometry-Perimeter, Area, Volume

1. Perimeter, Area
2. Shaded Area
3. Know and apply the volume formulas for:
    - Rectangular prism
    - Cylinder
    - Cone
    - Sphere
4. Use formulas to solve real world problems
5. Cube roots

Unit 10: Statistics

1. Scatter plots
2. Line of best fit
3. Relate graphs to story
4. Display bivariate data:
    - Frequency table
    - Two-way table

Unit 11: The Number System & Radicals

1. The Real Number system
2. Finite and Infinite decimals
3. Distinguishing between rational and irrational
4. Converting fractions to terminating and repeating decimals
5. Converting decimals to fractions (including repeating)
6. Square roots (perfect 1-15)
7. Solve square root problems
8. Cube roots (1-5)
9. Solve cube root problems
10. Estimate square roots

Unit 12: Pythagorean Theorem

1. Prove Pythagorean Theorem
2. Find side (legs and hypotenuse)
3. Converse of Pythagorean Theorem
4. Use Pythagorean Theorem on Coordinate Plane.