Semester 1 of 2					
Unit Number: Title and Duration	Purpose	Priority Grade-Level Standards	Content Goals	Learner Outcomes	Resources and Materials
Unit 1: Expressions and Equations 18 days	Understanding how to write/solve equations can be useful in both Adv Math (Business) Science and CTE programs.	8.AEE.C Analyze and solve linear equations and pairs of simultaneous linear equations	Students will know: ● Vocabulary related to algebraic expressions and equations. ● The process by which to solve one step, two step, and multi-step equations. ● Identify an equation as having one solution, no solution or infinite solution.	Students will be able to: ● Solve linear equations with the correct property using a clear path including rational number coefficients, distributive property, combining like terms, and having variables on both sides. ● Examine a given linear equation in one variable, and determine if it has one solution, no solution, or infinite solution.	SMc Curriculum: *Core Focus on Mathematics: Linear Equations* (Block 1 1.1-1.7)

			Students will know:	Students will be able to:	SMc Curriculum: *Core Focus on Mathematics: Linear Equations* (Block 2)
Unit 2: Sequence and Slope 18 days	Understanding the relationship between unit rate and slope in graphs and contextual settings will allow students to write linear equations to make predictions in both math (business) and science.	8.AEE.B Understand the connections between proportional relationships, lines, and linear equations. 8.AFN.A Define, evaluate, and compare functions. 8.AFN.B Use functions to model relationships between quantities.	• Unit, rate, and slope of line on a graph are the same. • A function has one output for every input. • A linear relationship can be shown in y = mx+b format.	• Write an equation for the line in slope-intercept form y = mx + b, understanding the slope of the line is the same between any two points. • Compare functions algebraically graphically, numerically in tables and verbally by description. • Identify visually through a graph or by ordered pairs on whether it is a linear function or nonlinear. • Write an equation in slope-intercept form identifying start value and rate of change.	

| Unit 3: Using Linear Equations

18 days | Understanding how to graph linear equations and write linear equations from a graph is helpful to make predictions in both math (business) and science. | 8.AFN.A Define, evaluate, and compare functions.

8.AFN.B Use functions to model relationships between quantities. | Students will know:

● Functions can be represented in different ways (algebraically, graphically, numerically, and contextually.

● A linear relationship can be shown in y = mx+b format. | Students will be able to:

● Create a graph based on y = mx + b and interpret slope and start value (initial value) in authentic context.

● Write a linear equation from a graph using start value and finding slope by using slope triangle, formula, or table.

● Convert point-slope form and standard form to slope intercept form.

● Solve story problems with the use of y = mx + b in authentic context. | SMc Curriculum: *Core Focus on Mathematics: Linear Equations* (Block 3 3.1-3.5; 3.7) |

| Unit 4: Systems of Equations

24 days | Understanding how to write and solve systems of linear equations can be used in real life settings to comparison shop, business opportunities, and measurement costs. | 8.AEE.C Analyze and solve linear equations and pairs of simultaneous linear equations.

8.NS.A Know that there are numbers that are not rational, and approximate them by rational numbers. | Students will know:

● A system is a set of two or more linear equations that have common variables.

● A solution to a system of two linear equations corresponds to the points of intersection, because the points can satisfy both equations simultaneously.

● Real Numbers involve rational and irrational numbers and be able to identify examples of each. | Students will be able to:

● Examine a system of linear equations, without solving, and determine the types of solution (one, none, infinite).
● Identify the solution to a system of linear equations as the point of intersection.
● Solve systems of linear equations algebraically and estimate solutions by graphing.
● Apply understanding of systems of linear equations to solve problems in context.
● Convert repeating decimals to fractions. | SMc Curriculum: *Core Focus on Mathematics: Linear Equations* (Block 44.1-4.7; 4.9) |

Semester 2 of 2					
Unit Number: Title and Duration	Purpose	Priority Grade-Level Standards	Content Goals	Learner Outcomes	Resources and Materials
Unit 1: Pythagorean Theorem

18 days | Understanding of real number systems (irrational vs rational numbers)in application of Pythagorean theorem can be used in CTE careers such as construction, engineering and architecture. | 8.AEE.A Expressions and Equations Work with radicals and integer exponents

8.NS.A Know that there are numbers that are not rational, and approximate them by rational numbers

8.GM.B Understand and apply the Pythagorean Theorem. | Students will know:
- Perfect Squares and cube roots exist and are able to find the value of each by itself or represented in an expression.
- The square root of a perfect square is a rational number that can be used a point of reference on a number line to estimate a number not a perfect square (irrational numbers).
- The Pythagorean theorem and the converse of the Pythagorean theorem can be used to find unknown lengths | Students will be able to:
- Estimate, compare and order irrational numbers on a number line and justify the reasonableness of the approximation.
- Evaluate expressions involving perfect squares and cube roots.
- Explain a model of the Pythagorean Theorem and its converse.
- Apply the Pythagorean Theorem to find unknown lengths of two- and three-dimensional figures in real world and | SMc Curriculum: *Core Focus on Mathematics: Geometry* (Block 2 2.1-2.7) |

			and prove/disprove right triangles.	mathematical problems. ● Apply the Pythagorean theorem to find the distance between two points.	
Unit 2: Angles and Triangles 16 days	Understanding of angle relationships, as well as congruence and similarity applicable to CTE careers.	8.GM.A Understand congruence and similarity using physical models, transparencies, or geometry software.	Students will know: ● Angle relationships created by a transversal cutting through parallel lines. (alternate exterior, alternate interior, corresponding, same side interior) ● Classification of triangles based on sides and angles. ● Difference between similarity and congruence between triangles using angle-angle criteria.	Students will be able to: ● Recognize and apply properties of different angle relationships (alternate exterior, alternate interior, corresponding and same side interior). ● Classify triangles based on sides and angles, and use properties of triangles in general and specifically to find missing measurements of angles.	SMc Curriculum: *Core Focus on Mathematics: Geometry* (Block 1 1.1-1.7)

			● Angle sum of triangles can be used to find missing measurements.	● Determine similarity or congruence between triangles and find missing measures of angles and sides.	
Unit 3: Transformations 16 days	Understanding of transformational geometry applicable to CTE careers.	8.GM.A Understand congruence and similarity using physical models, transparencies, or geometry software.	Students will know: ● Properties of transformations (translation, rotation, reflection and dilation).	Students will be able to: ● Describe the sequence of translations, rotations, and/or reflections between two congruent figures. ● Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates. ● Use rules to describe the sequence of dilations, translations,	SMc Curriculum: *Core Focus on Mathematics: Geometry* (Block 3 3.1-3.6)

				rotations, and/or reflections between two similar figures.	
Unit 4: Exponents and Volume 16 days	Understanding integer exponents with the powers of 10 will be useful in science when learning about small and large sizes (Cells vs. Planet size) Understanding of formulas in authentic contexts useful in science, CTE programs, and anywhere that formulas might be used.	8.AEE.A Expressions and Equations Work with radicals and integer exponents 8.GM.C Solve mathematical problems in authentic contexts involving volume of cylinders, cones, and spheres.	Students will know: ● Properties of integer exponents (multiplication and division). ● The difference between scientific notation and standard notation. ● The formulas for finding volume of sphere, cone, and cylinder.	Students will be able to: ● Apply properties of integer exponents and generate equivalent numerical expressions. ● Use and perform operations with scientific notation in both standard and scientific notation form. ● Compute with numbers in scientific notation. ● Find the volume of cylinders, spheres, cones, and solve real world problems related to them.	SMc Curriculum: *Core Focus on Mathematics: Geometry* (Block 4 4.1-4.8)

End of Semester 2