8th grade math Weekly Pacing and Engage Alignment

Week	Lessons	Resources
Module One: Reasoning about Similarity and Transformations **Suggested time:** 3 weeks (15 days)		
1 & 2	NC.8.G.3 Describe the effect of dilations about the origin, translations, rotations about the origin in 90 degree increments, and reflections across the x-axis and y- axis on two-dimensional figures using coordinates.	Not much in Engage for this module. Here are recommended resources: Instruction Resources: ● Rules Foldable - foldable on rules of transformations ● Rules Notes - Notes going over the rules ● Module Two Lesson Six Engage ● Transformation Rules and Dilation Rules ● Module Three Lesson Six (Notes, Practice, Exit Ticket) Practice Resources: ● Module Two Lesson Three Homework ● Practice with Transformations ● Basic Practice ● Dilations Homework Practice ● Transformations Project Exit Ticket Resources: ● Transformations Quiz
3	NC.8.G.2 Use transformations to define congruence: • Verify experimentally the properties of rotations, reflections, and translations that create congruent figures. • Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of	Module Three Lesson One, Eight and Twelve ● Module Three Lesson One (All parts-notes, practice, exit ticket) ● Module Three Lesson

	rotations, reflections, and translations. • Given two congruent figures, describe a sequence that exhibits the congruence between them. NC.8.G.4 Use transformations to define similarity. • Verify experimentally the properties of dilations that create similar figures. • Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations. • Given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.	Eight (All parts-notes, practice, exit ticket) ● Module Three Lesson Twelve (All parts-notes, practice, exit ticket) ● https://www.helpingwithmath.com/by_subject/geometry/geo_dilations.htm Practice Resources: ● Proving Congruence Practice
Module Two: Equations and Angles Time Frame: 6 weeks (30 days)		
1	NC.8.EE.7 Solve real-world and mathematical problems by writing and solving equations and inequalities in one variable. • Solve linear equations and inequalities including multi-step equations and inequalities with the same variable on both sides.	Module Four Lesson 3, 4, 6
2	NC.8.EE.7 Solve real-world and mathematical problems by writing and solving equations and inequalities in one variable. • Recognize linear equations in one variable as having one solution, infinitely many solutions, or no solutions.	Module Four Lesson 7 and 9
3	NC.8.G.5 Use informal arguments to analyze angle relationships. • Recognize the relationships between the angles created when parallel lines are cut by a transversal.	Module Two Lessons 12
4	NC.8.G.5 Use informal arguments to analyze angle relationships. • Recognize relationships between interior and exterior angles of a triangle. • Recognize the angle-angle criterion for similarity of triangles.	Module Two Lessons 13 and 14
5	NC.8.G.5 Use informal arguments to analyze angle relationships. • Solve real-world and mathematical problems	Module Four Lesson 5

	involving angles.	
6	Review of equations and angles	
Module Three: Functional Reasoning Time Frame: 8 weeks (40 days)		
1	NC.8.F.4 Analyze functions that model linear relationships. • Understand that a linear relationship can be generalized by $y = mx + b$. • Write an equation in slope-intercept form to model a linear relationship by determining the rate of change and the initial value, given at least two (x, y) values or a graph. • Construct a graph of a linear relationship given an equation in slope-intercept form. • Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of the slope and y-intercept of its graph or a table of values	Module Four Lesson 10 through 13
2	NC.8.F.4 Analyze functions that model linear relationships. • Understand that a linear relationship can be generalized by $y = mx + b$. • Write an equation in slope-intercept form to model a linear relationship by determining the rate of change and the initial value, given at least two (x, y) values or a graph. • Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of the slope and y-intercept of its graph or a table of values • Construct a graph of a linear relationship given an equation in slope-intercept form.	Module Four Lesson 14 through 18
3	NC.8.F.4 Analyze functions that model linear relationships. • Understand that a linear relationship can be generalized by $y = mx + b$. • Write an equation in slope-intercept form to model a linear relationship by determining the rate of change and the initial value, given at least two (x, y) values or a graph. • Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of the slope and y-intercept of its graph or a table of values • Construct a graph of a linear relationship	Module Four Lesson 19 through 22

	given an equation in slope-intercept form.	
4	NC.8.EE.8 Analyze and solve a system of two linear equations in two variables in slope-intercept form. • Understand that solutions to a system of two linear equations correspond to the points of intersection of their graphs because the point of intersection satisfies both equations simultaneously. • Solve real-world and mathematical problems leading to systems of linear equations by graphing the equations. Solve simple cases by inspection.	Module Four Lesson 24 - 26 (skip 28 & 30)
5	NC.8.EE.8 Analyze and solve a system of two linear equations in two variables in slope-intercept form. • Understand that solutions to a system of two linear equations correspond to the points of intersection of their graphs because the point of intersection satisfies both equations simultaneously. • Solve real-world and mathematical problems leading to systems of linear equations by graphing the equations. Solve simple cases by inspection.	Module Four Lesson 27 - 30
6	NC.8.F.1 Understand that a function is a rule that assigns to each input exactly one output. • Recognize functions when graphed as the set of ordered pairs consisting of an input and exactly one corresponding output. • Recognize functions given a table of values or a set of ordered pairs.	Module Five Lessons 1 through 4
7	NC.8.F.3 Identify linear functions from tables, equations, and graphs.	Module Four Lesson 2 and Module Five Lesson 5 through 8
8	Review of Functional Reasoning	
Module Four: Statistics and Graphs Time frame: 5 weeks (25 days)		
1	NC.8.SP.3 Use the equation of a linear model to solve problems in the context of bivariate quantitative data, interpreting the slope and y-intercept.	Module Six Lesson 1 -3
2	NC.8.F.5 Qualitatively analyze the functional	Module Six Lessons 4 & 5

	relationship between two quantities. • Analyze a graph determining where the function is increasing or decreasing; linear or non-linear. • Sketch a graph that exhibits the qualitative features of a real-world function.	Great resource: http://www.graphingstories.com/
3	NC.8.SP.1 Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Investigate and describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.	Module Six Lesson 6 & 7
4	NC.8.SP.2 Model the relationship between bivariate quantitative data to: • Informally fit a straight line for a scatter plot that suggests a linear association. • Informally assess the model fit by judging the closeness of the data points to the line.	Module Six Lesson 8 - 11
5	NC.8.SP.4 Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. • Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. • Use relative frequencies calculated for rows or columns to describe possible association between the two variables.	Module Six Lesson 13 & 14
Module Five: Reasoning with Numbers Time Frame: 4 Weeks		
1	NC.8.NS.2 Use rational approximations of irrational numbers to compare the size of irrational numbers and locate them approximately on a number line. Estimate the value of expressions involving: • Square roots and cube roots to the tenths. • π to the hundredths. NC.8.EE.2 Use square root and cube root symbols to: • Represent solutions to equations of the form x 2 = p and x 3 = p, where p is a positive rational number. • Evaluate square roots of perfect squares and	Module Seven Lesson 2 through 5 Module Five Lesson 9 (for the area of squares) Module Seven 6&7, 10, 11, 13

	cube roots of perfect cubes for positive numbers less than or equal to 400. NC.8.NS.1 Understand that every number has a decimal expansion. Building upon the definition of a rational number, know that an irrational number is defined as a non-repeating, non-terminating decimal.	
2	NC.8.G.6 Explain the Pythagorean Theorem and its converse.	Module Seven Lesson 1 Module Two Lessons 13 - 16
3	NC.8.G.7 Apply the Pythagorean Theorem and its converse to solve real-world and mathematical problems. NC.8.G.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system	Module Seven Lesson 1, 17, 18
4	NC.8.G.9 Understand how the formulas for the volumes of cones, cylinders, and spheres are related and use the relationship to solve real-world and mathematical problems.	Module Five Lesson 10 & 11
Module Six: Exponents and Scientific Notation Time Frame: 3 weeks (15 days)		
1	NC.8.EE.1 Develop and apply the properties of integer exponents to generate equivalent numerical expressions.	Module One Lesson 2 - 5
2	NC.8.EE.3 Use numbers expressed in scientific notation to estimate very large or very small quantities and to express how many times as much one is than the other. NC.8.EE.4 Perform multiplication and division with numbers expressed in scientific notation to solve real-world problems, including problems where both decimal and scientific notation are used.	Module One Lesson 8, 10 and 11

3	Review of exponents and scientific notation	