Advisory Curriculum Council
Curriculum Guide

In Stage 1, please complete the columns in blue (Topic, Pacing, Unit, Standards, Essential Questions and Enduring Understandings, and Vocabulary and Concepts). In Stage 3, please complete the columns in green (Learning Targets, Materials, Assessments). Add additional rows as needed.

Course Name:	Math
Course Number:	5291, 6291, 7291
Level:	8th grade

Topic	Pacing (days)	Unit	Standards	Essential Questions and Enduring Understandings	Learning Targets I can...	Vocabulary and Concepts	Materials	Assessments
Chapter 2 : Equations in 1 Variable	1	Chapter 2 Opener		How can you communicate mathematical ideas effectively? What is equivalence?			Textbook Chromebook	
	2	2.1 Solve Eqn with rational coefficients	8.EE.7 8.EE.7a 8.EE.7b MP: 1, 3, 4, 7	*What is equivalence? * How can you solve an equation using symbolic manipulation?	Solve equations with rational coefficients	Multiplicative inverse coefficient	Textbook Chromebook	
	2	2.2 - Solve 2 step equations	8.EE.7 8.EE.7a 8.EE.7b MP: 1, 2, 3, 4	*What is equivalence? * How can you solve an equation using symbolic manipulation?	Solve two step equations	Properties Two-step equation	Textbook Chromebook	
	2	2.3 - Write 2 step equations	8.EE.7 8.EE.7a 8.EE.7b MP: 1, 2, 3, 4	*What is equivalence? * How are algebraic expressions and equations used to represent practical problems?	Write two step equations that represent situations		Textbook Chromebook	
	1	Mid Chapter Check						Mid Chapter Check

	1	2.4 - Solve equations with variables on both sides	8.EE.7 8.EE.7a 8.EE.7b MP: 1, 3, 4	*What is equivalence? * How can you solve an equation using symbolic manipulation?	Solve equations with variables on each side		Textbook Chromebook	
	1	2.5 - Solve Multi Step Equations	8.EE.7 8.EE.7a 8.EE.7b MP: 1, 2, 3, 4	* Under what circumstances is it possible to have more than one solution that fits a given situation? * What are the characteristics of a system of equations that yields zero, one, or multiple solutions?	Solve multi-step equations	Null set No solution Empty set Identity Infinitely many	Textbook Chromebook	
	2	Performance Task						
	1	Chapter 2 Review						
	1	Chapter 2 Test						Chapter 2 Test
Total	14 days							

Chapter 4: Functions and parts of Chapter 3	1	Chapter Opener		*How can you find and use patterns to model real-world situations? *How can we model relationships between quantities?			Textbook Chromebook	
	2	4.9 - Qualitative Graphs	8.F.5 MP: 1, 2, 3, 4	* What does it mean when we see constant and predictable changes in a table of data or a graph? * How does change in one variable affect change in the other variable in a linear relationship?	Sketch and describe qualitative graphs	Qualitative graphs	Textbook Chromebook	
	1	4.1 - Represent relationships	8.F.4 MP: 1, 3, 4, 5	* How do you know if a table of values, graph, and equation represent the same linear relationship? * What information about the data can you learn from the values of the slope and the y-intercept?	Translate tables and graphs into linear equations	Linear equation	Textbook Chromebook	
	2	4.2 - Relations	8.F.1 MP: 1, 3, 4, 7	* How can you tell if a function is linear or non-linear by looking at the graph of a function?	Represent relations using tables and graphs	Relation Domain Range Input Output	Textbook Chromebook	

	1	4.3 - Functions	8.F.1 8.F.4 MP: 1, 2, 3, 4	* How do you know if a table of values, graph, and equation represent the same linear relationship?	Find function values and complete function tables	Function Function table Independent variable Dependent variable Input Output	Textbook Chromebook	
	2	4.4 - Linear Functions	8.F.1 8.F.3 8.F.4 MP: 1, 3, 4, 7	* How do you know if a table of values, graph, and equation represent the same linear relationship? ?	Represent linear functions using tables and graphs	Linear function Continuous data Discrete data	Textbook Chromebook	
	1	Mid Chapter Check						Mid Chapter Check
	2	4.5 - Compare Properties of Functions	8.F.2 8.F.4 MP: 1, 2, 3, 4	* How can you recognize linear and non-linear relationships between two variables in a table? Graph? In an equation?	Compare properties of functions represented in different ways		Textbook Chromebook	
	2	4.6 - Construct Functions	8.F.4 MP: 1, 3, 4	* How do you know if a table of values, graph, and equation represent the same linear relationship?	Find and interpret the rate of change and initial value of a function		Textbook Chromebook	
	2	4.7 - Linear and nonlinear functions	8.F.1 8.F.3 8.F.5 MP: 1, 3, 4, 7	* What does it mean when we see constant and predictable changes in a table of data or a graph? * How does change in one variable affect change in the other variable in a linear relationship?	Determine whether a function is linear or nonlinear	Non linear function	Textbook Chromebook	
		4.8 - SKIP						
	2	3.1 - Constant Rate of Change	Prep for 8.EE.5 MP: 1, 3, 4, 5	*Why are graphs helpful? * What does the rate of change (slope of a line) represent in a real-world situation	Identify proportional and nonproportional linear relationships by finding a constant rate of change.	Linear relationship Constant rate of change	Textbook Chromebook	
	2	3.2 - Slope	Prep for 8.EE.5 MP: 1, 3, 4	*Why are graphs helpful? * What does the rate of change (slope of a line) represent in a real-world situation	Use tables and graphs to find the slope of a line	Slope Rise Run	Textbook Chromebook	

	1	3.3 - Equations in y=mx+b form	8.EE.5 8.EE.6 8.F.2 8.F.4 MP: 1, 3, 4	*Why are graphs helpful? * What does the rate of change (slope of a line) represent in a real-world situation * How can you recognize linear and non-linear relationships between two variables in a table? Graph? In an equation? * What information about the data can you learn from the values of the slope and the y-intercept?	Use direct variation to solve problems	Direct variation Constant of Variation Constant of Proportionality	Textbook Chromebook	
	2	3.4 - Slope Intercept Form	8.EE.6 8.F.3 8.F.4 MP: 1, 3, 4	*Why are graphs helpful? * What does the rate of change (slope of a line) represent in a real-world situation * How does a table of values for a non-linear function differ from a table of values for a linear function? * What information about the data can you learn from the values of the slope and the y-intercept?	Graph linear equations using the slope and y-intercept	Y-intercept Slope-intercept form	Textbook Chromebook	
	2	3.5 - Graphing a line using intercepts	8.EE.8c MP: 1, 3, 4		Graph an equation using the x- and y- intercepts	x-intercept Standard form	Textbook Chromebook	
	2	Performance Task						
	2	Chapter 3 and 4 Review						
	1	Chapter 3 and 4 Test on Functions						Chapter 3 and 4 Test
Total	30 days							

Chapter 3: Systems of Equations	3	3.7 - Solve systems by graphing	8.EE.8 8.EE.8a 8.EE.8b 8.EE.8c MP: 1, 3, 4, 7	* How can you check whether a point is the intersection point of a system of equations? * Why is more than one equation sometimes needed to solve a problem? * What are the characteristics of a system of equations that yields zero, one, or multiple solutions? * What are some ways to solve simultaneous equations?	Solve systems of linear equations by graphing	Systems of Equations	Textbook Chromebook	
	3	3.8 - Solve systems algebraically	8.EE.8 8.EE.8b 8.EE.8c	* How can you check whether a point is the intersection point of a system of equations? * Why is more than one equation sometimes needed to solve a problem?	Solve systems of equations algebraically	substitution	Textbook Chromebook	

			MP: 1, 3, 4, 7	* What are the characteristics of a system of equations that yields zero, one, or multiple solutions? * What are some ways to solve simultaneous equations?				
	1	Performance Task						
	2	Chapter 3 Review						
	1	Chapter 3 Test						Chapter 3 Test
Total	10 days							
Chapter 1: Real Numbers	1	Chapter Opener		Why is it helpful to write numbers in different ways?				
	2	1.1 - Real Numbers	8.NS.1 MP: 1, 3, 4, 6, 7, 8	*Why is it helpful to write numbers in different ways? *How can you determine if a number is a rational number? * How do rational and irrational numbers compare and contrast? Why are irrational numbers useful?	Write fractions and decimals as fractions	Rational number Repeating decimal Terminating decimal	Textbook Chromebook	

	1	1.2 - Powers and Exponents	8.EE.1 MP: 1, 3, 4, 8	*Why is it helpful to write numbers in different ways? *How can I write repeated multiplication using powers?	Write and evaluate expressions involving powers and exponents	Power Base Exponent	Textbook Chromebook	
	2	1.3 - Multiply and Divide Monomials	8.EE.1 MP: 1, 3, 4, 7	*Why is it helpful to write numbers in different ways? *How can I use the properties of integer exponents to simplify algebraic and numeric expressions?	Simplify real number expressions by multiplying and dividing monomials	Monomial	Textbook Chromebook	
	2	1.4 - Powers of Monomials	8.EE.1 MP: 1, 3, 4, 7	*Why is it helpful to write numbers in different ways? *	Use the Laws of Exponents to find powers of monomials		Textbook Chromebook	
	1	Mid Chapter Check						Mid Chapter Check
	2	1.5 - Negative Exponents	8.EE.1 MP: 1, 3, 4, 7	*Why is it helpful to write numbers in different ways? * What do negative exponents mean? *How are negative exponents and positive exponents related?	Simplify expressions involving negative exponents		Textbook Chromebook	
	1	1.6 - Scientific Notation	8.EE.4 MP: 1, 3, 4, 7	*Why is it helpful to write numbers in different ways? * Why does scientific notation involve using a power of ten in the expression? *How is scientific notation useful in the real world?	Use scientific notation to write large and small numbers	Scientific notation	Textbook Chromebook	
	2	1.7 - Compute with Scientific Notation	8.EE.3 8.EE.4 MP: 1, 3, 4	*Why is it helpful to write numbers in different ways? * How do we efficiently express very large or very small quantities? * Why does scientific notation involve using a power of ten in the expression?	Compute with numbers written in scientific notation		Textbook Chromebook	
	1	1.8 - Roots	8.EE.2 MP: 1, 3, 4	*Why is it helpful to write numbers in different ways? * What is the relationship between square and square root and cube and cube root? *Why would I need to use square roots and cube roots?	Find square roots and cube roots	Square root Perfect square Radical sign Cube root Perfect cube	Textbook Chromebook	
	1	1.9 - Estimate Roots	8.NS.2 8.EE.2	* How do rational and irrational numbers compare and contrast? Why are irrational numbers useful?	Estimate square and cube roots		Textbook Chromebook	

			MP: 1, 3, 4	* What is the relationship between square and square root and cube and cube root?				
	1	1.10 - Compare Real Numbers	8.NS.1 8.NS.2 8.EE.2 MP: 1, 3, 4, 6	* How do rational and irrational numbers compare and contrast? Why are irrational numbers useful? *How are real numbers different from irrational numbers?	Compare mathematical expressions	Irrational number Real number	Textbook Chromebook	
	1	Performance Task						
	2	Chapter 1 Review						
	1	Chapter 1 Test						Chapter 1 Test
Total	21 days							
Chapter 5: Triangles and the Pythagorean Theorem	1	Chapter Opener		How can you use different measurements to solve real-life problems? *How can algebraic concepts be applied to geometry?			Textbook Chromebook	
	3	5.1 - Lines	8.G.5 MP: 1, 3, 4	* What patterns are found in angles made with parallel lines that help us to solve problems?	Identify relationships of angles formed by two parallel lines	Perpendicular lines Parallel lines	Textbook Chromebook	

					cut by a transversal	Transversal Interior angles Exterior angles Alternate interior Alternate exterior Corresponding angles		
	SKIP	5.2 - Geometric Proof						
	2	5.3 - Angles of Triangles	8.G.5 MP: 1, 2, 3, 4	* What patterns are found in the angle measures of triangles?	Find missing angles measures in triangles	Triangle Interior angle Exterior angle Remote interior angle	Textbook Chromebook	
	1	Inq Lab: Right Triangle Relationships	8.G.6 MP: 1, 3, 4	* How can you prove the Pythagorean theorem? How can you prove the converse of the Pythagorean theorem?	Model the relationship among the sides of a right triangle		Textbook Chromebook	
	1	5.4 - Polygons and Angles	8.G.5 MP: 1, 3, 4	* What patterns are found in the angle measures of triangles?	Find the sum of the angle measures of a polygon and the measure of one interior angle of a regular polygon	Polygon Equiangular Regular polygon	Textbook Chromebook	
	1	Mid Chapter Check						Mid Chapter Check
	2	5.5 - The Pythagorean Theorem	8.G.7 8.EE.2 MP: 1, 3, 4, 5	* How can you use a right triangle to find the distance between any 2 points in the coordinate plane?	Use the Pythagorean Theorem	Legs Hypotenuse Pythagorean Theorem Converse	Textbook Chromebook	
	2	5.6 - Use the Pyth Theorem	8.G.7 8.EE.2 MP: 1, 3, 4, 7	* How can you use a right triangle to find the distance between any 2 points in the coordinate plane?	Solve problems using the Pythagorean Theorem		Textbook Chromebook	
	2	5.7 - Distance on the coordinate	8.G.8 8.EE.2	* How can you use a right triangle to find the distance between any 2 points in the coordinate plane?	Find the distance between two points on the coordinate	Distance formula	Textbook Chromebook	

		grid	MP: 1, 3, 4, 5		plane			
	1	Performance Task						
	2	Chapter 5 Review						
	1	Chapter 5 Test						Chapter 5 Test
Total	19 days							
Chapter 6: Transformations	1	Chapter Opener		How can we best show or describe the change in position of a figure?				
	1	6.1 - Translations	8.G.1 8.G.3 MP: 1, 2, 3, 4, 8	*How are figures translated on the coordinate plane? * How can properties of symmetry and transformations demonstrate congruence or	Graph translations on the coordinate plane	Transformation Pre-image Image	Textbook Chromebook	

				similarity? * How can transformations be described algebraically? How can you use a line to generate the reflection image of a figure over that line?		Translation congruent		
	1	6.2 - Reflections	8.G.1 8.G.3 MP: 1, 3, 4, 7	*How can you determine the coordinates of a figure after a reflection over either axis? * How can properties of symmetry and transformations demonstrate congruence or similarity? * How can transformations be described algebraically? How can you use a line to generate the reflection image of a figure over that line?	Graph reflections on the coordinate place	Reflection Line of reflection	Textbook Chromebook	
	2	6.3 - Rotations	8.G.1 8.G.3 MP: 1, 3, 4, 7	* How can properties of symmetry and transformations demonstrate congruence or similarity? * How can transformations be described algebraically? * What are the coordinate rules for reflections over the x-axis and y-axis, dilations centered at the origin, and translations? Why do these rules make sense geometrically?	Graph rotations on the coordinate plane	Rotation Center of rotation	Textbook Chromebook	
	1	6.4 - Dilations	8.G.3 MP: 1, 3, 4	*How are dilations similar to scale drawings? * What are the coordinate rules for reflections over the x-axis and y-axis, dilations centered at the origin, and translations? Why do these rules make sense geometrically?	Use scale factors to graph dilations		Textbook Chromebook	
	1-2	Performance Task						
	3	Chapter 6 Review						
	1	Chapter 6 Test						Chapter 6 Test
Total	15 days							

Chapter 7: Congruence and Similarity	1	Chapter Opener		How can you determine congruence and similarity?				
	2	7.1 - Congruence	8.G.1	*Why do translations, reflections, and rotations	Use a series of		Textbook	

		and Transformations	8.G.1A 8.G.1B 8.G.2 MP: 1, 3, 4	create congruent images? * How can properties of symmetry and transformations demonstrate congruence or similarity? * What types of symmetry can be found around you?	transformations to create congruent figures		Chromebook	
	2	7.2 - Congruence	8.G.2 MP: 1, 2, 3, 4	*How can the coordinate plane help you determine that corresponding sides are congruent? * How can properties of symmetry and transformations demonstrate congruence or similarity? * What types of symmetry can be found around you?	Write congruence statements for congruent figures	Corresponding parts	Textbook Chromebook	
	1	Mid Chapter Check						Mid Chapter Check
	2	7.3 - Similarity and Transformations	8.G.4 MP: 1, 3, 4, 7	*What is the difference between using transformations to create similar figures versus using transformations to create congruent figures? * What does it mean for figures to be similar and/or congruent?	Use transformations to create similar figures	Similar	Textbook Chromebook	
	1	7.4 - Properties of Similar Polygons	8.G.4 MP: 1, 2, 3, 4	*How does the scale factor of a dilation relate to the ratio of two of the corresponding sides of the preimage and the image? * What does it mean for figures to be similar and/or congruent?	Identify similar polygons and find missing measures of similar polygons	Similar polygons Scale factor	Textbook Chromebook	
	1	7.5 - Similar Triangles and Indirect Measurement	8.G.5 MP: 1, 3, 4, 7	*How do similar triangles make it easier to measure very tall objects? * What patterns in angle measures help to solve problems with similar figures?	Solve problems involving similar triangles	Indirect measurements	Textbook Chromebook	
	1	7.6 - Slope and Similar Triangles	8.EE.6 MP: 1, 2, 3, 4	*How is the slope of a line related to the similar slope triangles formed by the line? * What does the slope of a line represent in a real-world situation?	Relate the slope of a line to similar triangles		Textbook Chromebook	
	1	7.7 - Area and Perimeter of Similar Figures	Extension of 8.G.4 MP: 1, 2, 3, 4	*If you know two figures are similar and you are given the area of both figures, how can you determine the scale factor of the similarity? * What does it mean for figures to be similar and/or congruent?	Find the relationship between perimeters and areas of similar triangles		Textbook Chromebook	

	2	Chapter 7 Review						
	1	Chapter 7 Test						Chapter 7 Test
Total	15 days							
Chapter 8: Volume and Surface Area	1	Chapter Opener		Why are formulas important in math and science?				
	1	8.1 - Volume of	8.G.9	*How is the formula for the volume of a cylinder similar to the formula for the volume of a	Find the volume of cylinders	Volume	Textbook	

		Cylinders	MP: 1, 3, 4, 6	rectangular prism? * How do we find the volume of shapes such as cones, cylinders, and spheres?		Cylinder Composite solids	Chromebook	
	1	8.2 - Volume of Cones	8.G.9 MP: 1, 2, 3, 4	*What would have a greater effect on the volume of a cone: doubling its radius or doubling its height? Explain. * How do we find the volume of shapes such as cones, cylinders, and spheres?	Find the volume of cones	Cone	Textbook Chromebook	
	1	8.3 - Volume of Spheres	8.G.9 MP: 1, 3, 4	* How do we find the volume of shapes such as cones, cylinders, and spheres?	Find the volume of spheres	Sphere Hemisphere	Textbook Chromebook	
	1	Mid Chapter Check						Mid Chapter Check
	2	8.4 - Surface Area of Cylinders	8.G.9 MP: 1, 3, 4	* How do we find the volume of shapes such as cones, cylinders, and spheres?	Find the surface area of cylinders	Lateral areas Total surface area	Textbook Chromebook	
	2	8.5 - Surface Area of Cones	8.G.9 MP: 1, 2, 3, 7	* How do we find the volume of shapes such as cones, cylinders, and spheres?	Find the surface area of cones		Textbook Chromebook	
	2	8.6 - Changes in Dimensions	8.G.9 MP: 1, 3, 4	*How is the volume of a prism affected when its dimensions are tripled? * How do we find the volume of shapes such as cones, cylinders, and spheres?	Solve problems involving similar solids	Similar solids	Textbook Chromebook	
	2	Chapter 8 Review						
	1	Chapter 8 Test						Chapter 8 Test
Total	14 days							
Chapter 9: Scatter Plots and Data Analysis	1	Chapter Opener		How are patterns used when comparing two quantities?				

	2	9.1- Scatter Plots	8.SP.1 MP: 1, 3, 4	* How is positive association shown in a scatter plot? Negative association? No association? * What effect will an outlier have on an association? * How can you decide where to place a line of best fit on a graph? * How can graphical displays of bivariate data sets be used to identify and analyze associations?	Construct and make conjectures about scatter plots	Bi-variate data Scatter plot Positive association Negative association Outlier Cluster		
	2	9.2 - Line of Best Fit	8.SP.1 8.SP.2 8.SP.3 MP: 1, 3, 4, 5	* How is positive association shown in a scatter plot? Negative association? No association? * What effect will an outlier have on an association? * How can you decide where to place a line of best fit on a graph?	Draw lines of best fit and use them to make predictions about data	Line of best fit		
	2	9.3 - Two Way Tables	8.SP.4 MP: 1, 3, 4, 5	* How can data in a table or scatter plot be used to predict a future outcome? * How can a two-way table be used to compare variables?	Construct and interpret two-way tables	Relative frequency Two-way table		
	1	Mid Chapter Check						
		OMIT the rest of the Chapter as it is not 8th grade standards						
Total	8 days							