2021-2022 Curriculum Map: Geometry

Timeline	Content	Standards and Demonstrators	Activities	I Can…	Resources
Aug. 26 - Sept. 18					
	Points, Lines and Planes	**MA-HS-3.1.1** Students will analyze and apply spatial relationships (not using Cartesian coordinates) among points, lines and planes (e.g., betweenness of points, midpoint, segment length, collinear, coplanar, parallel, perpendicular, skew). **DOK 2** MA-HS-3.4.1 Students will identify definitions, axioms and theorems, explain the necessity for them and give examples of them.	**Practice ACT Test Questions**	…use basic geometry terminology to compare points, lines and planes. …identify a segment and a ray. …use the Segment Addition Postulate to solve for an unknown. …use the midpoint and distance formulas to solve for unknowns. …identify and compare right, obtuse and acute angles. …use the Angle Addition Postulate to solve for an unknown. …determine if a pair of angles are complementary or supplementary. …identify and label angle pairs and vertical or a linear pair. …setup and solve equations using the properties of angle pairs.	PowerPoints, addional practice problems from Internet
	Segments	**MA-HS-1.5.2** Students will use equivalence relations (reflexive, symmetric, transitive). **MA-HS-3.1.2** Students will use spatial relationships to prove basic theorems.			
	Midpoint, Distance and Slope				
	Angles	**MA-HS-3.1.3**			
	Angle Pairs **CHAPTER 1 TEST**		**Twizzlers and Starburst**		
Sept. 21 - Oct. 23	**Parallel and Perpendicular Lines Aug. 30-Sept. 4**	**MA-HS-3.1.1** Students will analyze and apply spatial relationships (not using Cartesian coordinates) among points, lines and planes (e.g., betweenness of points, midpoint, segment length, collinear, coplanar, parallel, perpendicular, skew). **DOK 2** MA-HS-3.4.1 Students will identify definitions, axioms and theorems, explain the necessity for them and give examples of them.	**Practice ACT Test Questions**	…identify angle pairs that are congruent or supplementary. …determine if two lines are parallel. …find the value of the missing angles. …find the slope of a line. …write the equation of a line. …determine if two lines are perpendicular.	PowerPoints, Internet, addional practice problems.
	Prove Lines Parallel		**CERT Fridays**		
	Slopes of Lines		***Electronic devices**		
	Angles in Polygons	**MA-HS-3.1.5**	***Electronic devices**		
	Equations of Lines **CHAPTER 2 TEST**		**Letter to the Board: For or against**		

Oct. 26 - Dec. 4	**Algebraic Proofs**		***Electronic devices will be used for**	…use properties of mathematics to write an algebraic proof. …use properties of mathematics to write angle proofs. …use properties of angles and mathematics to write proofs for angle pairs. …prove that two lines are parallel.	
	Prove Segments and Angles	**MA-HS-3.1.3**			Additonal problems from the internet
	Prove Angle Pairs	**MA-HS-3.1.3** MA-HS-3.1.4 Students will use angle relationships to prove basic theorems. **MA-HS-3.3.1**	**Cert Fridays Oct. 5, 19, 26**		
	Congruent Triangles		***Electronic devices will be used for CERT's practice**	…identify if two triangles are congruent using SSS, SAS, ASA, AAS, and HL. …solve for missing sides and angles if two triangles are congruent. …identify if a triangle is an isosceles, equilateral, or scalene. …find missing sides and angles of isosceles and equilateral triangles. ...combine like terms and make use of the distributive property when adding, subtracting and multiplying polynomials.	PowerPoints, addional practice problems from Internet
	Isosceles and Equilateral Triangles **CHAPTER 3 TEST -**		**Practice ACT Test Questions**		
Dec. 7 - Dec. 18	**Ratios and Proportions**		**Practice ACT Test Questions**	…write a ratio to compare two values. …reduce a ratio to simplest form. …write a proportion and solve. ...determine if two polygons are similar based on their ratios. …determine if two triangles are similar using AA, SSS, SAS. …use the Proportionality Theorem to solve for missing sides.	PowerPoints, addional practice problems from Internet
	Similar Polygons	**MA-HS-3.1.12** MA-HS-3.1.13			
	Similarity - AA, SSS, SAS				
	Proportionality Theorem **CHAPTER 5 TEST**		**CERT Fridays Jan. 4, 11, 18, 25**		

Jan. 4 - Jan. 29	**Triangle Sum Theorem**			…give the definition of the Triangle Sum Theorem. …use the Triangle Sum Theorem to find missing angles. …label the sides of Special Right Triangles. …use the properties of Special Right Triangles to find the missing sides. …write the ratios for sine, cosine, and tangent. …use sine, cosine, and tangent to solve for missing sides and angles.	
	Pythagorean Theorem	**MA-HS-2.1.3** Students will apply definitions and properties of right triangle relationships (right	**Practice Test**		
	Special Right Triangles	**MA-HS-2.1.3** **MA-HS-2.1.4**	**Practice Test Questions**		PowerPoints, addional practice problems from Internet
	Trigonometry (Sine, Cosine, Tangent)	**MA-HS-2.1.3**	**PLVS: Ladder Test Question**		
	Solve Right Triangles including Angles of Elevation and Depression		**Practice Test Questions**		
	(ACCELERATED) Law of Sines and Law of Cosines **CHAPTER 7 TEST**		**CERT Fridays Feb. 7, 14, 21, 28**		
	Parallelograms		***Electronic devices will be**	…find the missing angles in a polygon. …use properties of a parallelogram to find missing sides and angles. …use properties of a square to find missing sides and angles. …use properties of a rectangle to find missing sides and angles. …use properties of a trapezoid to find missing sides and angles. …use the midsegment formula to find the midsegment of a trapezoid. …use the properties of a kite to find missing sides and angles.	PowerPoints, addional practice problems from
	Rhombuses, Rectangles, Squares	**MA-HS-3.1.5**			
	Trapezoids and Kites	**MA-HS-3.1.5**	**ACT in March for Juniors**		
	CHAPTER 6 TEST				
eb. 22 - Mar. 12	**Tangents**	MA-HS-3.1.6 Students will know the definitions and basic properties of a circle and will use them to prove basic theorems and solve problems.	***Electronic devices will be used for**	……use tangents of a circle to find lengths of segments. …use exterior points of a circle to find the length of segments. …find the arc measure of a circle given the central angle. …define a chord. …use the formula of Inscribed Angles to find missing angle measures and arc lengths. …use the formula of Exterior Angles to find missing angles measures and arc lengths. …write the equation of a circle.	PowerPoints, addional practice problems from Internet
	Arc Measures				
	Chords				
	Inscribed Angles and Polygons				

F	**Equations of Circles** **CHAPTER 8 TEST**		***ACT Will be given during this unit.***		
Mar. 15 - Apr. 2	**Midsegment**	**MA-HS-3.1.12** MA-HS-3.1.13	**Practice ACT Test Questions**	…use the midsegment formula to find a missing length. …use the midsegment formula to solve equations. …use a perpendicular bisector to solve for missing sides or angles. …determine if the three given lengths could be the sides of a triangle. …find the rangel of a triangle given two others. ...list the side lengths of a triangle in ascending order from least to greatest given the angle measures.	PowerPoints, addional practice problems from Internet
	Perpendicular Bisector				
	Angle Bisectos of Triangles				
	Inequalities of Triangles		**CERT Fridays Jan. 4, 11, 18, 25**		
April 12 - April 30	**Areas of Triangles, Trapezoids, Rhombi, and Parallelograms**			...find the area of a triangle. …find the area of a parallelogram. …find the area of a rhombus. …find the area of a kite. …find the area of a trapezoid. …find the circumference of a circle. …find the area of a sector.	PowerPoints, addional practice
	Circumference, Areas of Circles and Sectors	MA-HS-3.1.6 Students will know the definitions and basic properties of a circle and will use them to prove basic theorems and solve problems.	**Practice ACT Test Questions**		
	Areas of Regular Polygons		**CERT Fridays Nov. 2, 9,**		
	Surface Area of Prisms and Cylinders	**MA-HS-2.1.1** Students will determine the surface area and volume of right rectangular prisms, pyramids, cylinders, cones and spheres in real-world and mathematical problems. **DOK 2** **MA-HS-2.1.2** Students will describe how a change in one or more dimensions of a geometric figure affects the perimeter, area and volume of the figure. **DOK 3** MA-HS-3.1.11 Students will visualize solids and surfaces in three-dimensional space when given two-dimensional representations (e.g., nets, multiple views) and create two-dimensional representations for the surfaces of three-dimensional objects.	**HUMANITIES: Platonics Solids Activity**	…find the surface area of a prism. …find the surface area of a cylinder. …find the surface area of a pyramid. …find the surface area of a cone. …find the surface area of a sphere. …find the volume of a prism. …find the volume of a cylinder. …find the volume of a pyramid. …find the volume of a cone. …find the volume of a sphere.	PowerPoints, addional practice problems from Internet
	Surface Area of Pyramids and Cones		Use formula sheets from		
	Volume of Prisms and Cylinders		**Gingerbread House Design**		
	Volume of Pyramids and Cones		Practice ACT Test		
	Surface Area and Volume of Spheres **CHAPTER 10 TEST**		**CERT Fridays Dec. 7, 14**		

May 3 - May 11	**Translations**	**MA-HS-3.2.1** Students will identify and describe properties of and apply geometric transformations within a plane to solve real-world and mathematical problems. **DOK 3**	***Electronic devices will be used for**	...perform a horizontal translation. …perform a vertical translation. …perform a reflection along the x-axis, y-axis, and the line y=x. …perform rotations about the origin clockwise and counterclockwise. …perform composition transformation. …determine the axis of symmetry. …perform a dialation.	PowerPoints, addional practice problems from Internet
	Reflections	**MA-HS-3.2.1** Students will identify and describe properties of and apply geometric transformations within a plane to solve real-world and mathematical problems. **DOK 3**			
	Rotations				
	Composition Transformations				
	Symmetry				
	Dilation **CHAPTER 11 TEST**				
May 12 - May 14	**Review for Finals**				