Baldwin Union Free Schools District

Geometry Scope and Sequence (Common Core)

January, 2018

Module 1
Module 2
Module 3
Module 4
Module 5

Curriculum Writers

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Module 1: Congruence, Proof, and Constructions

Sub-Topics	Specific Topics	Common Core Standards	Resources	Number of Days
Unknown Angles	❑ Solve for Unknown Angles—Angles and Lines at a Point ❑ Solve for Unknown Angles—Transversals ❑ Solve for Unknown Angles—Angles in a Triangle ❑ Base Angles of Isosceles Triangles	G-CO.C.9	Module 1 Lessons 6 - 8 Module 1 Lesson 23 Identifying Angles Video Parallel Lines Activity Geogebra Angle Pairs khan academy angles practice	6
Basic Constructions	❑ Construct an Equilateral Triangle ❑ Copy and Bisect an Angle ❑ Construct a Perpendicular Bisector ❑ Points of Concurrencies	G-CO.A.1, G-CO.D.12, G-CO.D.13	www.mathopenref.com Module 1 Lessons 1 - 5 Points of Concurrency Video	6
Unknown Angles	❑ ~~Unknown Angle Proofs—Writing Proofs~~ ❑ ~~Unknown Angle Proofs—Proofs with Constructions~~ ❑ ~~Unknown Angle Proofs—Proofs of Known Facts~~	G-CO.C.9	Module 1 Lessons 9 - 11 Intro to Proofs Activity	5
Transformations/Rigid Motions	❑ Transformations—The Next Level ❑ Rotations ❑ Reflections ❑ Rotations, Reflections, and Symmetry ❑ Translations ❑ Characterize Points on a Perpendicular Bisector ❑ Looking More Carefully at Parallel Lines ❑ Construct and Apply a Sequence of Rigid Motions ❑ Applications of Congruence in Terms of Rigid Motions ❑ Correspondence and Transformations	G-CO.A.2, G-CO.A.3, G-CO.A.4, G-CO.A.5, G-CO.B.6, G-CO.B.7, G-CO.D.12	Module 1 Lessons 12 - 21 Geogebra Translations Demo Geogebra Reflection Trends Geogebra Rotation Trends Video of Composition of Rigid Motion	10
Mid-Module Assessment				
Congruence	❑ Congruence Criteria for Triangles—SAS ❑ Congruence Criteria for Triangles—ASA and SSS	G-CO.B.7, G-CO.B.8	Module 1 Lessons 22, 24 - 27	10

	❑ Congruence Criteria for Triangles—AAS and HL ❑ Triangle Congruency Proofs		**Methods Of Congruence Two Column Proof Checklist**	
Proving Properties of Geometric Figures	❑ Properties of Parallelograms ❑ Special Lines in Triangles (Midsegments)	G-CO.C.9, G-CO.C.10, G-CO.C.11	Module 1 Lesson 28 Module 1 Lesson 29 - 30 Discovering Properties of Parallelograms	7 2
Advanced Constructions	~~❑ Construct a Square and a Nine-Point Circle~~ ~~❑ Construct a Nine-Point Circle~~	G-CO.D.13	Module 1 Lesson 31 - 32	1
Axiomatic Systems	~~❑ Review of the Assumptions~~	G-CO.A.1, G-CO.A.2, G-CO.A.3, G-CO.A.4, G-CO.A.5, G-CO.B.6, G-CO.B.7, G-CO.B.8, G-CO.C.9, G-CO.C.10, G-CO.C.11, G-CO.C.12, G-CO.C.13	Module 1 Lessons 33 and 34	1
Review, Quiz, Test, and Reflect- 24 days (Including Quarterly Review and Quarterly) Total Number of Days - 72				

Module 2: Similarity, Proof, and Trigonometry

Sub-Topics	Specific Topics	Common Core Standards	Resources	Number of Days
Scale Drawings	❑ Scale Drawings ❑ Making Scale Drawings Using the Ratio Method ❑ Making Scale Drawings Using the Parallel Method	G-SRT.A.1, G-SRT.B.4, G-MG.A.3	Module 2 Lesson 1 - 5 Scale Drawings and Football Activity	7

	❑ Comparing the Ratio Method with the Parallel Method ❑ Scale Factors			
Dilations	❑ Dilations as Transformations of the Plane ❑ How Do Dilations Map Segments? ❑ How Do Dilations Map Lines, Rays, and Circles? ❑ How Do Dilations Map Angles? ❑ Dividing the King's Foot into 12 Equal Pieces ❑ Dilations from Different Centers	G-SRT.A.1, G-SRT.B.4	Module 2 Lesson 6 - 11 Finding Scale Factor How To Video	3
Similarity and Dilations	❑ What Are Similarity Transformations, and Why Do We Need Them? ❑ Properties of Similarity Transformations ❑ Similarity ❑ The Angle-Angle (AA) Criterion for Two Triangles to Be Similar ❑ Between-Figure and Within-Figure Ratios ❑ The Side-Angle-Side (SAS) and Side-Side-Side (SSS) Criteria for Two Triangles to Be Similar ❑ Similarity and the Angle Bisector Theorem ~~❑ Families of Parallel Lines and the Circumference of the Earth~~ ~~❑ How Far Away Is the Moon?~~	G-SRT.A.2, G-SRT.A.3, G-SRT.B.5, G-MG.A.1	Module 2 Lessons 12 - 20 Similarity Postulates	5
Mid-Module Assessment				
Applying Similarity to Right Triangles	❑ Special Relationships Within Right Triangles—Dividing into Two Similar Sub-Triangles ~~❑ Multiplying and Dividing Expressions with Radicals~~ ~~❑ Adding and Subtracting Expressions with Radicals~~ ~~❑ Prove the Pythagorean Theorem Using Similarity~~	G-SRT.B.4	Module 2 Lesson 21 - 24 (Review Factoring, Simplifying Radicals) Reducing Radicals on Calculator Review Factoring Activity	8
Trigonometry	❑ Incredibly Useful Ratios ❑ The Definition of Sine, Cosine, and Tangent ❑ Sine and Cosine of Complementary Angles and Special Angles ❑ Solving Problems Using Sine and Cosine ❑ Applying Tangents	G-SRT.C.6, G-SRT.C.7, G-SRT.C.8	Module 2 Lessons 25 - 34 Intro to Trig Project (Discovery) Law of Sines and Cosines How to determine which formula to use	7

	❑ Trigonometry and the Pythagorean Theorem ❑ ~~Using Trigonometry to Determine Area~~ ❑ ~~Using Trigonometry to Find Side Lengths of an Acute Triangle~~ ❑ Applying the Laws of Sines ~~and Cosines~~ ❑ Unknown Angles			
Review, Quiz, Test, and Reflect - 15 days Total Number of Days - 45				

Module 3: Extending to Three Dimensions

Sub-Topics	Specific Topics	Common Core Standards	Resources	Number of Days
Area	❑ What Is Area? ❑ Properties of Area ❑ The Scaling Principle for Area ❑ ~~Proving the Area of a Disk~~	G-GMD.A.1	Module 3 Lesson 1 - 4	3
Volume	❑ Three-Dimensional Space ❑ General Prisms and Cylinders and Their Cross-Sections ❑ General Pyramids and Cones and Their Cross-Sections ❑ Definition and Properties of Volume ❑ Scaling Principle for Volumes ❑ The Volume of Prisms and Cylinders and Cavalieri's Principle ❑ The Volume Formula of a Pyramid and Cone ❑ The Volume Formula of a Sphere ❑ ~~How Do 3D Printers Work?~~	G-GMD.A.1, G-GMD.A.3, G-GMD.B.4, G-MG.A.1, G-MG.A.2, G-MG.A.3	Module 3 Lesson 5 - 13 Discover Cross Sections Activity Volume and Density of 3D Geometric Shapes (Video) Practice with Cavalieri's Principle	7
Review, Quiz, Test, and Reflect- 6 days Total Number of Days - 16				

Module 4: Connecting Algebra and Geometry Through Coordinates

Sub-Topics	Specific Topics	Common Core Standards	Resources	Number of Days

Rectangular and Triangular Regions Defined by Inequalities	❑ ~~Searching a Region in the Plane~~ ❑ ~~Finding Systems of Inequalities That Describe Triangular and Rectangular Regions~~ ❑ ~~Lines That Pass Through Regions~~ ❑ ~~Designing a Search Robot to Find a Beacon~~	G-GPE.B.7	Module 4 Lessons 1 - 4	2
Perpendicular and Parallel Lines in the Cartesian Plane	❑ Criterion for Perpendicularity ❑ Segments That Meet at Right Angles ❑ Equations for Lines Using Normal Segments ❑ Slope of a Line ❑ Parallel and Perpendicular Lines ❑ Dilating a Line (From the Origin or a Point on the Line)	G-GPE.B.4, G-GPE.B.5	Module 4 Lessons 5 - 8 Slopes of Parallel and Perpendicular Lines: Inquiry Activity	4
Mid-Module Assessment				
Perimeters and Areas of Polygonal Regions in the Cartesian Plane	❑ Perimeter and Area of Triangles in the Cartesian Plane ❑ Perimeter and Area of Polygonal Regions in the Cartesian Plane ❑ ~~Perimeters and Areas of Polygonal Regions Defined by Systems of Inequalities~~	G-GPE.B.7	Module 4 Lessons 9 - 11 Area of shapes on a cartesian coordinate plane (Video)	2
Partitioning and Extending Segments and Parameterization of Lines	❑ Distance and Midpoint Formula ❑ Dividing Segments Proportionately ❑ ~~Analytic Proofs of Theorems Previously Proved by Synthetic Means~~ ❑ ~~Motion Along a Line—Search Robots Again (Optional)~~ ❑ The Distance from a Point to a Line	G-GPE.B.4, G-GPE.B.6	Module 4 Lessons 12 - 15 Distance and Midpoint Mini-Project	4
Review, Quiz, Test, and Reflect - 4 days **Total Number of Days - 16**				

Module 5: Circles With and Without Coordinates

Sub-Topics	Specific Topics	Common Core Standards	Resources	Number of Days
Central and Inscribed Angles	❑ ~~Thales' Theorem~~	G-C.A.2,	Module 5 Lessons 1 - 6	3

	❑ Circles, Chords, Diameters, and Their Relationships ❑ Quadrilaterals Inscribed in Circles ❑ Central Angles ❑ Inscribed Angle Theorem and Its Applications ❑ Unknown Angle Problems with Inscribed Angles in Circles	G-C.A.3	Geogebra Circle Unit (Various Videos) Intro to Circle Vocab	
Arcs and Sectors	❑ The Angle Measure of an Arc ❑ Arcs and Chords ❑ Arc Length and Areas of Sectors ❑ Unknown Length and Area Problems	G-C.A.1, G-C.A.2, G-C.B.5	Module 5 Lessons 7 - 10 Sector Area and Arc Length Foldable	3
Mid-Module Assessment				
Secants and Tangents	❑ Properties of Tangents ❑ Tangent Segments ❑ The Inscribed Angle Alternate—A Tangent Angle ❑ Secant Lines; Secant Lines That Meet Inside a Circle ❑ Secant Angle Theorem, Exterior Case ❑ Similar Triangles in Circle-Secant (or Circle-Secant-Tangent) Diagrams	G-C.A.2, G-C.A.3	Module 5 Lessons 11 - 16 Angles of Circles Graphic Organizer	2
Equations for Circles and Their Tangents	❑ Writing the Equation for a Circle ❑ Recognizing Equations of Circles ❑ Equations for Tangent Lines to Circles	G-GPE.A.1, G-GPE.B.4	Module 5 Lessons 17 - 19 Student-Teacher Interactive (Desmos)	2
Cyclic Quadrilaterals and Ptolemy's Theorem	~~❑ Cyclic Quadrilaterals~~ ~~❑ Ptolemy's Theorem~~	G-C.A.3	Module 5 Lessons 20 - 21	1
Review, Quiz, Test, and Reflect - 4 days **Total Number of Days - 15**				

Note to Geometry Teachers - This leaves 11 school days for Regents Review. This will take us to May 31st. We included review and test days for Quarterlies and Midterms as well as Midterm Week.