MATH MCS MYP UNIT PLANNER

Teacher(s)	**Echo Fritch**	**Subject group and discipline**	**Accelerated Geometry B/Algebra 2**		
Unit title	**Unit 3 Geometric and Algebraic Connections** **(GaDOE Accelerated Geo B/Alg II Unit 2)**	**MYP year**	**5**	**Unit duration (hrs)**	**8 Hours** **(2 Weeks)**

Inquiry: Establishing the purpose of the unit

Key concept	**Related concept(s)**	**Global context**
Relationships	Model	Scientific and Technical Innovation - Systems, models, methods; products, processes and solutions
Statement of inquiry		
Relationships is used to identify and understand connections within scientific and technical innovation through real-world modelling.		
Inquiry questions		

Factual—

What information does the standard form equation of a circle give?

What are the properties of quadrilaterals?

Conceptual—

How do I convert the equation of a circle from general form to standard form?

How do I write equations of parallel and perpendicular lines?

How is the equation of a circle determined in a coordinate plane?

How do you find a point on a directed line segment that divides a segment in a given ratio?

Given a set of points, how do I classify a shape?

Given a shape on a coordinate plane, how do I determine perimeter and/or area?

Debatable—

What shape would be best for your outdoor garden given a certain perimeter and area?

MYP Objectives	**Assessments**
MYP Objective C: Communication Compare/Contrast the properties of quadrilaterals	Common Unit Quiz Common Unit Test

Approaches to learning (ATL)

- Practice observing carefully in order to recognize problems
- Combine knowledge, understanding, and skills to create products or solutions.

Action: Teaching and learning through inquiry

Content Standards

Translate between the geometric description and the equation for a conic section

MGSE9-12.G.GPE.1 Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.

Use coordinates to prove simple geometric theorems algebraically

MGSE9-12.G.GPE.4 Use coordinates to prove simple geometric theorems algebraically. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point (1, √3) lies on the circle centered at the origin and containing the point (0,2).
MGSE9-12.G.GPE.5 Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems.
MGSE9-12.G.GPE.6 Find the point on a directed line segment between two given points that partitions the segment in a given ratio.
MGSE9-12.G.GPE.7 Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.

Apply geometric concepts in modeling situations

MGSE9-12.G.MG.1 Use geometric shapes, their measures, and their properties to describe objects.
MGSE9-12.G.MG.2 Apply concepts of density based on area and volume in modeling situations.
MGSE9-12.G.MG.3 Apply geometric methods to solve design problems.

Prove geometric theorems

MGSE9-12.G.CO.11 Prove theorems about parallelograms. Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.

Visualize relationships between two-dimensional and three-dimensional objects

MGSE9-12.G.GMD.4 Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.

Learning Activities and Experiences

Topic	Resources	Content Addressed	Standards Addressed
Writing Equations	**9-3 Writing Equations of Circles** **Pearson enVision pg. 400 – 405**	● Derive the equation of a circle ● Complete the square to find the center & radius of a circle ● Prove or disprove given points lie on a circle with a given center and containing a given point	GPE.1 GPE.4
	Radio Station Listening Activity (DOE)	● Real World Applications of circles	GPE.1 GPE.4
	2-4 Writing Equations and Comparing Slopes **Parallel & Perpendicular Lines** **Pearson enVision pg. 92 – 98**	● Compare/Contrast slopes of parallel and perpendicular lines ● Use slope criteria to solve geometric problems ● Write equations of parallel and perpendicular lines	GPE.5 GPE.6

		• Find a point on a directed line segment that partitions a line into a particular ratio	
	Additional Resources: Teacher Created Notes Outline		
Coordinate Geometry	Properties of Quadrilaterals	• Compare/Contrast properties of quadrilaterals	CO.11
	9-2 Proofs Using Coordinate Geometry **Pearson enVision pg. 393 – 399**	• Plan a method of proof using coordinate geometry. • Prove theorems using algebra and the coordinate plane. • Prove theorems pertaining to triangles. • Prove theorems pertaining to parallelograms. • Use coordinates, slope relationships, and distance formula to prove simple geometric theorems algebraically. • Compute the perimeters of polygons using the coordinates of the vertices and the distance formula. • Find the areas of rectangles and triangles using the coordinates of the vertices and the distance formula.	GPE.7 CO.11 GPE.4
	Additional Resources: Teacher Created Notes Outline		
Density	Population Density: Apply Concepts of Density based on Area & Volume	• Solve problems related to density comparing area and volume • Calculate population density	MG.2, MG.3
	How Many Cells are in the Human Body (DOE)?	• To apply the concepts of mass, volume, and density in a real-world context.	MG.1, MG.2, MG.3

Personalized Learning and Differentiation

Teachers differentiate by providing examples (work samples or task-specific clarifications of assessment criteria); structuring support (advance organizers, flexible grouping, peer relationships); establishing flexible deadlines, and adjusting the pace.

-SWD/504- Accommodations provided
-ELL- Five Principle ELL Curriculum Framework and Vocabulary Supports
-Intervention Support- Re-teaching Activities in Small Groups with Progress Monitoring
-Extensions- Enrichment Tasks and Projects

Resources

DOE Framework Tasks

Savvas Textbook Resources