Syllabus: Practices & Policies

2021-2022	Franklin High School
Section 1: Course Overview	
Course Title	Geometry 1 - 2
Instructor Info	Name: Melissa Extine Contact Info: mextine@pps.net
Grade Level(s)	9th & 10th
Room # for class	Room: S-026 & S-023
Credit	Type of credit: Math # of credits per semester: ½
Prerequisites (if applicable)	Algebra 1 - 2
General Course Description	In the first year course in algebra the representation of functions is used as a unifying theme. Students are introduced to linear, quadratic, and exponential functions through graphical, numerical and symbolic representations. Students learn to solve linear equations, inequalities, systems of equations, and quadratic equations. They deepen their understanding of basic algebraic concepts using investigative activities, and problem solving to develop confidence in their ability to think mathematically as they work both individually and collaboratively. After successful completion of this course, students should move on to Geometry.
Section 2: Welcome Statement & Course Connections	
Personal Welcome	I'm excited to be back in the classroom to do math with all of you this year! Please email me with any questions or concerns. I believe understanding math takes lots of practice, so my goal is that we will all be getting a lot of math practice in every period we have Geometry.
Course Highlights (topics, themes, areas of study)	1-Constructions 2-Transformations 3-Lines & Angles 4-Congruence & Similarity

	5-Trigonometry 6-Coordinate Geometry 7-Circles 8-Solids 9-Probability
Course Connections to [PPS ReImagined Vision]	• Partnerships & Collaboration • Joyful Learning & Leadership • Creativity & Innovation

Section 3: Student Learning

Prioritized Standards

The following standards will be explored in the course:

G1 - Constructions

Priority Standards:

HSG.CO.D.12 Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). *Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.*

G2 - Transformations

Priority Standards:

HSG.CO.A.3 Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.

HSG.CO.A.4 Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.

HSG.CO.B.6 Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.

HSG.SRT.A.1 Verify experimentally the properties of dilations given by a center and a scale factor.

HSG.SRT.A.1.A A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.

HSG.SRT.A.1.B The dilation of a line segment is longer or shorter in the ratio given by the scale factor.

G3 – Lines and Angles

Priority Standards:

HSG.CO.A.1 Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

HSG.CO.C.9 Prove theorems about lines and angles. *Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints*.

G4a – Similarity

Priority Standards:

HSG.SRT.A.2 Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.

HSG.SRT.A.3 Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.

HSG.SRT.B.4 Prove theorems about triangles. *Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.*

HSG.SRT.B.5 Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

G4b – Congruence

Priority Standards:

HSG.SRT.B.5 Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

HSG.CO.B.7 Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.

HSG.CO.B.8 Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.

G5 – Trigonometry

Priority Standards:

HSG.SRT.C.6 Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.

HSG.SRT.C.8 Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.*

G6 – Coordinate Geometry

Priority Standards:

HSG.GPE.B.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, $\sqrt{3}$) lies on the circle centered at the origin and containing the point (0, 2).*

HSG.GPE.B.5 Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).

HSG.GPE.B.6 Find the point on a directed line segment between two given points that partitions the segment in a given ratio

HSG.GPE.B.7 Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.*

HSG.CO.C.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*.

G7 – Circles

Priority Standards:

HSG.C.A.2 Identify and describe relationships among inscribed angles, radii, and chords. *Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.*

HSG.C.B.5 Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.

HSG.CO.A.1 Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

G8 – Solids

Priority Standards:

NOTE: The following two existing priority standards are mapped to priority standards in 8th Grade Unit 5: Data Modeling that students may have missed and may need further support with:

- HSG.GMD.A.1 Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. *Use dissection arguments, Cavalieri's principle, and informal limit arguments*.

- HSG.GMD.A.3 Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.*

HSG.GMD.B.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.

HSG.MG.A.2 Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).*

G9 – Probability

Priority Standards:

HSS.CP.A.1 Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").

HSS.CP.A.2 Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.

HSS.CP.A.3 Understand the conditional probability of A given B as $P(A \text{ and } B)/P(B)$, and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.

HSS.CP.A.4 Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities.

	For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results. **HSS.CP.A.5** Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. *For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.* **HSS.CP.B.6** Find the conditional probability of *A* given *B* as the fraction of *B*'s outcomes that also belong to *A*, and interpret the answer in terms of the model. **HSS.CP.B.7** Apply the Addition Rule, P(A or B) = P(A) + P(B) - P(A and B), and interpret the answer in terms of the model. **NOTE: The following existing supporting standards are standards listed in the ODE Native American Lesson and need to be prioritized:** · **HSS.MD.B.5.B** Evaluate and compare strategies on the basis of expected values. *For example, compare a high-deductible versus a low-deductible automobile insurance policy using various, but reasonable, chances of having a minor or a major accident.* - *ODE Native American Standard/Lesson* **(+)HSS.MD.B.5** (+) Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values. - *ODE Native American Standard/Lesson*
PPS Graduate Portrait Connections	I will help students grow their knowledge and skills in the following aspects of PPS's Graduate Portrait: Help students become inclusive and collaborative problem solvers by providing opportunities for teamwork. Teamwork activities will encourage students to share ideas and build upon each other's ideas. Help students become inquisitive critical thinkers with deep core knowledge by providing opportunities to develop compelling arguments based on facts and evidence. Students will have opportunities to analyze information and come to conclusions based on that analysis. Help students become resilient and adaptable lifelong learners by supporting the creation of a growth mindset. Every single student is expected to improve their math skills pretty much every single class period.
Differentiation/ accessibility strategies and supports:	I will provide the following supports specifically for students in the following programs: *Special Education, 504 Plans, English Language Learners and Talented & Gifted:* Leveled, standards-based assessments with clear benchmarks for C-, B- and A-level work. Flexible timeline for demonstrating proficiency. Multiple attempts to retake and/or revise assessments. Honors credit available for interested students. Clearly posted and chunked agenda, daily learning target(s) and content vocabulary. Investigative, problem-based curricular model to attend to CCSS Mathematical Practices of 'making sense of problems and persevere in solving them'; 'Reason abstractly'; and 'look for and make use of structure,' for example. Explicit instruction using guided notes and

	teacher-provided notes. I will post notes we take in class onto Canvas in a shared folder. I will also be available on tutorial B days and before or after school. I will make all necessary accommodations and ask how else I can help. I will provide enrichment opportunities.
Personalized Learning Graduation Requirements (as applicable in this course):	☐ Career Related Learning Experience (CRLE) #1 ☐ Career Related Learning Experience (CRLE) #2 *-The experience(s) will be:* ☐ Complete a resume ☐ Complete the My Plan Essay
8/27 Work	**Section 4: Cultivating Culturally Sustaining Communities**
Tier 1 SEL Strategies *Shared Agreements*	I will facilitate the creation of our Shared Agreements that respects and celebrates each student's race, ability, language, and gender in the following way(s): Students will share their ideas about shared agreements and I will help the class to summarize those agreements.
	I will display our Agreements in the following locations: Canvas
	My plan for ongoing feedback through year on their effectiveness is: Conversations with students
Student's Perspective & Needs	I will cultivate culturally sustaining relationships with students by: Making connections through 1:1 interaction and supporting students in groups and the whole class.
	Families can communicate what they know of their student's needs with me in the following ways: Email is best.

Empowering Students	I will celebrate student successes in the following ways: I will praise students when they do well.
	I will solicit student feedback on my pedagogy, policies and practices by: Asking students questions on exit slips and occasional warm-ups.
	When class agreements aren't maintained (i.e. behavior) by a student I will approach it in the following ways: I will speak with students individually and try to find out the root cause of the behavior. If several conversations take place and the behavior persists, parents will be contacted. If the behavior still persists, an administrator will be contacted.
Showcasing Student Assets	I will provided opportunities for students to choose to share and showcase their work by: Encouraging groups to present their solutions. I will also show examples of exemplary student work on the walls of the classroom.
Section 5: Classroom Specific Procedures	
Safety issues and requirements (if applicable):	Students will be spread out as much as possible in classroom (~3') in an attempt to prevent the spread of Covid. Students are expected to wear masks at all times if they are not actively taking a drink of water.
Coming & Going from class	I understand the importance of students taking care of their needs. Please use the following guidelines when coming and going from class: Be ready to start working on math when the bell rings. Please work on math until the bell rings at the end of class.
Submitting Work	I will collect work from students in the following way: On paper or in Canvas as indicated.
	If a student misses a deadline, I will partner with the student in the following ways so they have the ability to demonstrate their abilities: I will occasionally allow opportunities to get caught up at the end of the class period. Students will also be encouraged to attend tutorials if they are behind. Students can also email me questions and submit late work electronically.
Returning Your Work	My plan to return student work is the following: *Timeline:* Within a week *What to look for on your returned work:* Written feedback *Revision Opportunities:* Revisions are allowed at any point before the end of the grading period.

Formatting Work (if applicable)	Directions on how to format submitted work (ex. formal papers, lab reports, etc) can be found here: n/a
Attendance	If a student is absent, I can help them get caught up by: Meeting before or after class to discuss what they missed. Student can also attend tutorial or email me.
Section 6: Course Resources & Materials	
Materials Provided	I will provided the following materials to students: Writing utensils as needed
Materials Needed	Please have the following materials for this course: Paper and writing utensil. *Franklin can help with any materials you may need as well. Please reach out to me privately and I will help you get what you need.*
Course Resources	Here is a link to resources that are helpful to students during this course: Khan Academy - Algebra 1
Empowering Families	The following are resources available for families to assist and support students through the course: Khan Academy - Algebra 1 Canvas (I will post all notes)
Section 7: Assessment of Progress and Achievement	
Formative Assessments	As students move through the learning journey during specific units/topics, I will assess & communicate their *progress* in the following ways: Feedback on formative and summative assessments.
Summative Assessments	As we complete specific units/topics I will provide the following types of opportunities for students to provide evidence of their *learned* abilities: Summative Assessments
Student Role in Assessment	Students and I will partner to determine how they can demonstrate their abilities in the following ways: Students will have an opportunity to show me what else they learned that I did NOT ask them about on an assessment.
Section 8: Grades Progress Report Cards & Final Report Cards	
Accessing Grades	Students & Families can go to the following location for up-to-date information about their grades throughout the semester: StudentVUE or ParentVUE
	I will update student grades at the following frequency: At least weekly.
Progress Reports	I will communicate the following marks on a progress report: *Mark: D/F-Level Meaning of the mark: Needs revision or recompletion*

	Mark: C-Level Meaning of the mark: basic understanding *Mark: B/A Meaning of the mark: Enhanced understanding*
Final Report Card Grades	The following system is used to determine a student's grade at the end of the semester: 70% of grade is tests/quizzes, 30% of grade is classwork.
	I use this system for the following reasons/each of these grade marks mean the following: I believe students must practice (classwork) to learn the material.
Other Needed info (if applicable)	