PUBLIC ACADEMY FOR PERFORMING ARTS

Geometery Course Syllabus

Course Name: Geometry
Teacher Name: Mr. Dorrenbacher
Room #: 8
Email Address: cdorrenbacher@paparts.net *(students)*
cdorrenbacher@paparts.org *(parents)*
Class Periods: 2, 3, & 6
Teacher Prep Time: Period 7

Welcome to Geometry for the 2025 – 2026 school year!

Course Description:

High school Geometry is a one-year course to develop and practice problem-solving skills using inductive and deductive reasoning about geometric relationships. This algebra-based course consists of all the general Euclidian Geometry topics, such as geometric definitions and symbols, angles, triangles and congruencies, geometric inequalities, parallel lines in a plane, quadrilaterals, triangle similarity, areas of 2-D shapes and surface area and volume of 3-D figures. Mathematical practices will be embedded into each of the areas of mathematics and the standards taught will be guided by the Common Core State Standards for Mathematics. Students gain experience through conceptual analysis, physical manipulatives, and real-world applications of geometry. The lessons usually explore two or three-dimensional shapes and examine their properties, measurements, and mutual relations in space. Geometric proofs are used as a vehicle to systematically develop problem-solving skills by relating geometric shapes and algebraic reasoning to the foundational definitions, properties, postulates, and theorems.

Course Objectives:

- Students will demonstrate knowledge of geometry and its applications in the real world.
- Students will apply appropriate techniques, tools, and formulas to determine measurements.
- Students will develop logical thinking skills.

Learning Goal: Webb's Depth of Knowledge (DOK)

DOK 1 **(Recall)**: Students will recall or recognize a fact, definitions, or term, apply a formula, represent math relationships in words, pictures, or symbols.

DOK 2 **(Skills/Concept)**: Students will classify plane and three-dimensional figures, use models to represent mathematical concepts, compare figures or statements, and provide justifications for steps in a solution process.

DOK 3 **(Strategic Thinking)**: Students will explain thinking when more than one response is possible, make and/or justify conjectures, use concepts to solve problems, and solve a multiple- step problem, supported with a mathematical explanation that justifies the answer.

DOK 4 **(Extended Thinking)**: Students will relate mathematical concepts to other content areas, relate mathematical concepts to real-world applications in new situations, and design a mathematical model to inform and solve a practical or abstract situation.

Key Principles:

- Everyone can learn math and the only way to *learn it* is to *do it*.
- Math is based in the real world. Everything around you is mathematics.
- There is fun in learning and using math. There is no such thing as boring mathematics.
- Questions are important. Do not be afraid to ask. Explore to learn more.
- People learn from their mistakes, don't be afraid to make them.

Behaviors I Expect of Students:

- To come to class every day on time prepared to work and learn.
- To put forth maximum effort to be successful in the classroom and master the content.
- To participate actively in the lessons whether individually, in pairs, in groups, or whole-class.
- To adhere to all school rules in the classroom.
- To be kind, prompt, and prepared… a professional role model

Behaviors Students Can Expect of Me as a Teacher:

- To create a positive learning environment where all students feel safe to try new things, take risks and express themselves.
- To be fair and treat all students equally.
- To present content material in a manner that will allow all students to learn.
- To provide additional support in and outside of the classroom to ensure students could achieve mastery.

Required Materials (to have ready every day):

- **Three-ring binder**
  It should be well-organized and should include **folders** and/or **dividers** for the following sections:
  - Course Syllabus
  - Key Ideas Notes & Activities
  - Checkpoint Quiz Reviews
  - Completed Checkpoint Quizzes and Retakes
- **2, 80-page Graphing Composition Notebooks** – Students use these for their Math Composition Notebook. *These are the ONLY notes that may be used on Unit Tests* along with the Lesson Concept Summaries folder.
- **Pencils** or **Pens** – It is recommended to use pencils so that it is easier to correct mistakes. COLORED pencils are recommended for taking notes and copying examples. Using color can improve memory recall and help to quickly find vocabulary or important formulas.

Materials Provided:

- **Graph, lined & blank paper**
- **Chromebook** – There's a Chromebook number designated for each student which will be used for the entire school year. Students are not allowed to use any other Chromebook number.
- **Calculators** – same rule as Chromebooks.
- **Online Textbook** – Big Ideas Math. Geometry: A Common Core Curriculum by Ron Larsen & Laurie Boswel
  Free Student Edition Website - https://bim.easyaccessmaterials.com/
  Choose "Common Core High School" and then "Geometry"
- **Rulers, meter/yard sticks, inclinometers, protractors, compasses, graph paper**

*** *Please note that all reusable materials are being loaned and should remain in good condition.*

Getting Help:

In addition to normal whole-class and team discussions, students may ask additional questions near the end of class or after school. At home, ***Questions about specific assignments should be sent using the Private Comment for that particular assignment in Google Classroom***. General questions can also be emailed to cdorrenbacher@paparts.net.

Types of Assignments

Over the course of a semester students have approximately 18 weeks of work which consist of…

- **IXL.com Homework** *(expect a range of 15-45 minutes per day)* – Each lesson will be accompanied by a set of 2-3 IXL skills required for practice. Students need to practice these basic skills to support fluidity with the skills. Students need to earn a SmartScore of 80 on each required skill to earn 100% for an IXL.com Homework assignment. Extra Credit can be earned on each assignment by building a SmartScore above 80 in one or more of the required skills. *CAUTION: No amount of Extra Credit on IXL.com homework can guarantee a student's entire Quarter Grade will become passing… Only passing Checkpoint Quizzes can do that.*
- **Worksheets/Forms** – Some in-class and homework assignments will be paper based and require students to complete all parts indicated in the instructions for the assignment.
- **Math-in-Art Assignments & Projects** *(at least 1 per quarter)* – These assignments connect Geometry concepts and skills to real-world art and architecture. Activities such as quilting, computer-aided design, building design, and dance choreography involve the aesthetics of Artistic Creation along with the logic and fundamentals of Geometric Principle. Math-in-Art assignments & projects may be assigned to individuals, completed by teams of 2-4 people, and/or done as an entire class.
- **Quiz Reviews** *(approx. every 2 weeks)* – Reviews give a set of practice problems focused variations of the particular problems that students will see on the Checkpoint Quiz. Quiz Reviews are provided to students the week prior to a scheduled Checkpoint Quiz. A sample version of each quiz in a grading period is also provided to students. Students should use these review assignments and sample quizzes to study for the Checkpoint Quizzes.

  CAUTION: Students are not allowed to use any notes during the Checkpoint Quiz, so study carefully. Some formulas may be provided depending on the quiz, but most of the time students must rely on their own memory for quizzes.
- **Lesson Summary Problems** *(1 per chapter)* – Notes, videos, exploration activities, class discussions, and games are used to teach students the vocabulary, concepts and skills in Geometry. At the end of each chapter, students will complete a set of problems that summarize all to the concepts and skills presented throughout each lesson. These summaries will be put into a folder kept in class. On Unit Tests, you may use only these summaries and the notes in your Math Composition Notebook for reference.
- **Unit Tests** *(1 per quarter)* – During the final week of each Quarter Grade period, students will complete a cumulative assessment consisting of approximately 25-35 problems. Students will get Unit Test Study Guide a few days before the test, which may be completed and turned-in on the day of the test for up to 10% extra credit. Students may have extra time to complete a Unit Test during the 8th period Targeted Assistance period or during a time that is pre-arranged with the teacher. ***Students may not retake a Unit Test. If a student is absent for a Unit Test, the student can only make it up by setting up an appointment outside of class time.***

NOTE: Failing a Unit Test does not mean a student will earn a failing grade for the quarter. As long as the student earns an average of 70% or better on Checkpoint Quizzes, the student will earn a passing grade for that quarter

- ***Weekly Participation Grade*** *(1 per week)* – This assignment is a Google Form students must fill out at the end of each week. On the form, students will complete a self-reflection of their participation during class. Students will identify the participation behaviors they showed throughout the week. Students will reflect on one thing they learned from the week, how prepared they were during the week, and one thing they could do to make the following week even better. Finally, students will give themselves a Participation Grade for the week based on their performance.
- **Checkpoint Quizzes** *(1 per chapter)* – Each chapter includes one fundamental skill for which students must demonstrate proficiency. Checkpoint Quizzes have 4-6 questions representing the most common types of problems involving that skill Students should use the Quiz Reviews and Sample Quizzes to practice the types of problems that will be expected on the quiz. Students must earn 70% or better to be considered proficient and 90% or above for mastery of a particular Checkpoint Quiz skill. ***A STUDENT MUST RETAKE ANY CHECKPOINT QUIZ THAT EARNS LESS THAN 60%.*** *Quiz retakes and make-ups occur outside of regular class time by default, but there may be some exceptions at the teacher's discretion.*

Semester Grading Policy

Students earn 0.5 credits toward high school graduation for passing a semester of Geometry with a grade of 60% or better. A semester grade consists of the weighted average between two quarterly grading periods and a final exam for the semester. Students will receive informal progress reports half-way through each Quarter Grade period, along with formal grade reports at the end of each grading period. After a quarterly grading period end-date or the semester end-date, Quarter and Semester Grades are only changed with approval from the classroom teacher or school administrator *(Please see the school calendar for the exact dates in each semester Grading Period)*. The Semester Grade is weighted as indicated below:

Grading Period	Weight on Semester Grade	Basic Grade Scale	
1st Quarter	40%	90-100 = A	80-89.9 = B
2nd Quarter	40%	70-79.9 = C	60-69.9 = D
Semester 1 Final Exam	20%	0-59.9 = F	

EXAMPLE: The table on the following page shows two different students' ***Semester Grade***. Let's assume Student 1 and Student 2 earn the following averages in each category… grade calculations are…

Student 1 EXAMPLE - PASS		Student 2 EXAMPLE - FAIL	
Student earns…	**Calculation of Semester Grade would be…**	**Student earns…**	**Calculation of Semester Grade would be…**
1st Quarter = 85%	0.4(85) = 34	1st Quarter = 68%	0.4(68) = 27.2
2nd Quarter = 63%	0.4(63) = 25.2	2nd Quarter = 51%	0.4(51) = 20.4
Final Exam = 68%	0.2(68) = 13.6	Final Exam =59%	0.2(59) = 11.8
TOTAL GRADE	Sum = **72.8% = C**	**TOTAL GRADE**	Sum = **59.4% = F**

CAUTION: Students must earn a passing grade in each Quarter Grade period AND on the Final Exam to guarantee a passing Semester Grade.

Quarter Grading Policy – A quarter grade consists of a weighted average for all the assignments which have due-dates within the beginning and end-dates for that quarter *(Please see the school calendar for the exact dates in each quarterly Grading Period)*. Grades are weighted each quarter in the following assignment categories, beginning with Checkpoint Quizzes, which have the most impact on a student's Quarter Grade:

Assignment Category	Weight on overall Quarter Grade
Checkpoint Quizzes	50%
Unit Tests • Unit Test Study Guide assignment • Quarterly Test	15%
Summary & Review • Quiz Review assignment • Chapter Lesson Summary Problems • Math-in-Art assignment/project	15%
Homework • IXL.com Skill practice • Worksheet assignments	10%
Weekly Participation self-reflection form	10%

NOTE: If a student earns an average of 70% or better on Checkpoint Quizzes, but the overall Quarter Grade is still not above 60%, the teacher will override the Quarter Grade and post a 61% passing grade. This type of override does not guarantee a passing Semester Grade, only a passing grade for that quarter.

EXAMPLE: The following table calculates two different students' ***Quarter Grade***. Let's assume Student 1 and Student 2 earn the following averages in each category… grade calculations are…

Student 1 EXAMPLE - PASS		Student 2 EXAMPLE - FAIL	
Student earns…	**Quarter Grade Calculation …**	**Student earns…**	**Quarter Grade Calculation…**
Checkpoint Quizzes = 71%	0.50(81) = 40.5	Checkpoint Quizzes = 47%	0.50(43) = 21.5
Unit Tests = 63%	0.15(63) = 9.45	Unit Tests = 51%	0.15(51) = 7.65
Summary & Review = 82%	0.15(82) = 12.3	Summary & Review = 80%	0.15(80) = 12
IXL Homework = 51%	0.10(51) = 5.1	IXL Homework = 100%	0.10(93) = 9.3
Participation = 90%	0.10(90) = 9	Participation = 90%	0.10(90) = 9
TOTAL GRADE	Sum = **76.35% = C**	TOTAL GRADE	Sum = **59.45% = F**

Absences:
If a student is absent on the day of a quiz or test, he or she must schedule the makeup for the next day. A student has one day for each excused day absent to make up missed assignments. If an assignment is due the day a student is absent, the assignment is due the day the student returns. For

absences that exceed one day, the student will have at least as much time to do makeup work as the number of days of class absence (except at the end of a Quarter or Semester Grade period in which all grades must be submitted by teachers prior to the semester deadline). Excessive absences of 10 or more may result in a loss of credit for high school students.

Tardiness:

If a student arrives after the tardy bell has rung to begin the period, he/she will be considered tardy to class. If the student has a pass, the pass should be given upon arrival to class, and the Tardy will be excused. If a student arrives more than 15 minutes late without a pass, this is considered an Unexcused Absence/Truant (AU).

Restroom Passes:

One student at a time may use the restroom or go out of the classroom. Students sign-out on the Bathroom Log with the time stated by the teacher. Students sign-in when they return. If a student is out for more than 7 minutes, office staff will be notified. If a student is out for longer than 15 minutes, parents will also be notified.

Cellphones/Electronic Devices:

The use of cellphones or other electronic devices is not permitted during class except when explicitly directed by the teacher. Please make sure these devices are kept in bags. If they present a disruption, please see the sequence of discipline below:
1st – verbal warning & instruction to place the device(s) into the student's personal backpack.
2nd – verbal warning & instruction to place the device(s) into the student's personal backpack. Parents will receive an email notice of the student's behavior.
3rd – Student's device will be held by the office staff until the end of the school day. The student may retrieve the device. Parents will receive a phone call and/or email notice of the student's behavior.
4th – Student's device will be turned into an administrator. Parents must come in person to retrieve the device from administration.

Dismissal:

Students should clean up any materials used and prepare the classroom for the next period's use. Students should remain in their seats until the bell rings. Ensure that desks and chairs are in their original positions. Keep your area neat and clean.

Discipline Procedure:

Most misbehaviors will receive a verbal warning and redirection by the teacher. Repeated misbehaviors will cause the teacher to notify parents via email. Severe misbehavior will result in appropriate discipline action according to the school's discipline matrix (and/or the Positive Behavior Intervention Flowchart). Failure to adhere to school rules in the classroom will result in appropriate disciplinary action. Please review Student Handbook for further details regarding discipline and the school's attendance policy.

Note: This syllabus may be modified as needed or as directed according to school policy changes.

Sign and return this portion by Monday, August 11. Keep the remainder of the syllabus at the FRONT of your 3-ring binder for the class.

Student

"I have read the Geometry Syllabus completely. I understand the expectations for Geometry class and agree to abide by them."

Printed Student Name: _____

Student Signature: _____

Student PAPA Gmail address: _____

Parent/Legal Guardian

"I have read the Geometry Syllabus completely with my student. I understand the expectations for Geometry class and agree to support my student to achieve them."

Printed Parent Name: _____

Parent Signature: _____

Best contact email address: _____

Best contact phone number: _____

Outline of Planned Topics for the 2025-2026 School Year

1st Quarter, August 6 – October 3	
Chapter 1: Basics of Geometry	Lesson 1.1 – Points, Lines, & Planes
	Lesson 1.2 – Measuring & Constructing Segments
	Lesson 1.3 – Using Midpoint and Distance Formula
	Lesson 1.4 – Perimeter and Area in the Coordinate Plane
	Lesson 1.5 – Measuring and Constructing Angles
	Lesson 1.6 – Describing Pairs of Angles
Chapter 2: Reasoning & Proofs	Lesson 2.1 – Conditional Statements
	Lesson 2.2 – Inductive & Deductive Reasoning
	Lesson 2.3 – Postulates & Diagrams
	Lesson 2.4 – Algebraic Reasoning
	Lesson 2.5 – Proving Statements about Segments and Angles
	Lesson 2.6 – Proving Geometric Relationships
Chapter 3: Parallel & Perpendicular Lines	Lesson 3.1 – Pairs of Lines & Angles
	Lesson 3.2 – Parallel Lines & Transversals
	Lesson 3.3 – Proofs with Parallel Lines
	Lesson 3.4 – Proofs with Perpendicular Lines
	Lesson 3.5 – Equations of Parallel & Perpendicular Lines
2nd Quarter, October 4 – December 19	
Chapter 4: Transformations	Lesson 4.1 – Translations
	Lesson 4.2 – Reflections
	Lesson 4.3 – Rotations
	Lesson 4.4 – Congruence Transformations
	Lesson 4.5 – Dilations
	Lesson 4.6 – Similarity and Transformations
Chapter 5: Congruent Triangles	Lesson 5.1 – Angles of Triangles
	Lesson 5.2 – Congruent Polygons
	Lesson 5.3 – Proving Triangle Congruence by SAS
	Lesson 5.4 – Equilateral and Isosceles Triangles
	Lesson 5.5 – Proving Triangle Congruence by SSS
	Lesson 5.6 – Proving Triangle Congruence by ASA
	Lesson 5.7 – Using Congruent Triangles
	Lesson 5.8 – Coordinate Proofs
Chapter 6: Relationships Within Triangles	Lesson 6.1 – Perpendicular and Angle Bisectors
	Lesson 6.2 – Bisectors of Triangles
	Lesson 6.3 – Medians and Altitudes of Triangles
	Lesson 6.4 – The Triangle Midsegment Theorem
	Lesson 6.5 – Indirect Proof and Inequalities in One Triangle
	Lesson 6.6 – Inequalities in Two Triangles

3rd Quarter, January 7 – March 6	
Chapter 7: Quadrilaterals and Other Polygons	Lesson 7.1 – Angles of Polygons
	Lesson 7.2 – Properties of Parallelograms
	Lesson 7.3 – Proving That a Quadrilateral is a Parallelogram
	Lesson 7.4 – Properties of Special Parallelograms
	Lesson 7.5 – Properties of Trapezoids and Kites
Chapter 8: Similarity	Lesson 8.1 – Similar Polygons
	Lesson 8.2 – Proving Triangle Similarity by AA
	Lesson 8.3 – Proving Triangle Similarity by SSS and SAS
	Lesson 8.4 – Proportionality Theorems
Chapter 9: Right Triangles and Trigonometry	Lesson 9.1 – The Pythagorean Theorem
	Lesson 9.2 – Special Right Triangles
	Lesson 9.3 – Similar Right Triangles
	Lesson 9.4 – The Tangent Ratio
	Lesson 9.5 – The Sine and Cosine Ratios
	Lesson 9.6 – Solving Right Triangles
	Lesson 9.7 – Law of Sines and Law of Cosines
4th Quarter, March 7 – May 15	
Chapter 10: Circles	Lesson 10.1 – Lines and Segments That Intersect Circles
	Lesson 10.2 – Finding Arc Measures
	Lesson 10.3 – Using Chords
	Lesson 10.4 – Inscribed Angles and Polygons
	Lesson 10.5 – Angle Relationships in Circles
	Lesson 10.6 – Segment Relationships in Circles
	Lesson 10.7 – Circles in the Coordinate Plane
Chapter 11: Circumference, Area, and Volume	Lesson 11.1 – Circumference and Arc Length
	Lesson 11.2 – Areas of Circles and Sectors
	Lesson 11.3 – Areas of Polygons
	Lesson 11.4 – Three-Dimensional Figures
	Lesson 11.5 – Volumes of Prisms and Cylinders
	Lesson 11.6 – Volumes of Pyramids
	Lesson 11.7 – Surface Areas and Volumes of Cones
	Lesson 11.8 - Surface Areas and Volumes of Spheres
Chapter 12: Probability	Lesson 12.1 – Sample Spaces and Probability
	Lesson 12.2 – Independent and Dependent Events
	Lesson 12.3 – Two-Way Tables and Probability
	Lesson 12.4 – Probability of Disjoint and Overlapping Events
	Lesson 12.5 – Permutations and Combinations
	Lesson 12.6 – Binomial Distributions
Additional Topic	Lessons: Focus of a Parabola