Geometry Preview

Course Overview:
“Geometry Preview” reinforces skills from Algebra I and introduces new skills from Geometry. It also develops logical thinking by providing the basics of deductive and inductive reasoning.

Course Description:
This class is designed to introduce Geometric concepts to those who have not taken Geometry or to strengthen concepts that need reinforcement for those who have had Geometry. This is not equivalent to the first semester of Geometry 1AB.

Course Goals and Objectives:
1. **Goal:** To develop analytical problem solving skills such as trying to see the problem as a whole and plan a solution.
   - **Objective:** Weave problem solving skills into the daily rigors of geometry through class discussion, explorations and assignments.
   - **Objective:** Analysis and interpretation of information will be stressed as the student recognizes similarities and differences between problems.
   - **Objective:** Differentiation of difficulty will be accomplished by varying degrees of challenging problems assigned.

2. **Goal:** To effectively communicate mathematical ideas by listening, reading, speaking and writing.
   - **Objective:** Deductive reasoning, analysis, interpretation and synthesis of geometric ideas will be clearly and concisely expressed between the student himself or herself and to the teacher as proofs are discussed.

Course Outline:
The student who completes the geometry course will know and understand the core materials in the outline below.

   I. Exploration and overview of geometry.
      A. Develop an awareness of the structure of a mathematical system, connecting definitions and postulates.
      B. Recognize that the study of geometry was developed for a variety of purposes and has historical significance.
      C. Define basic geometric terms.
D. Explore attributes of geometric figures using
   1. Constructions with straightedge and compass.
   2. Paper folding.
   3. Dynamic, interactive geometry software.

E. Explore the basic transformations.
   1. Translation.
   2. Rotation.
   3. Reflection.
   4. Dilation.

II. Logical reasoning.
   A. Define and use conditional statements.
   B. Determine the truth value of the converse of a conditional statement.
   C. Use logical reasoning to draw conclusions about geometric figures from given assumptions.
   D. Construct and judge validity of a logical argument consisting of a set of premises and a conclusion.
   E. Use inductive reasoning to formulate a conjecture.
   F. Use deductive reasoning to prove a statement.
   G. Find the contrapositive, converse, and inverse of a statement.
   H. Write and use counterexamples.
   I. Determine the truth of a conditional statement using a truth table.
   J. Determine the validity or invalidity of an argument using truth tables.

III. Lines and triangles.
   A. Based on explorations and using concrete models and geometry software, formulate and test conjectures about properties of
      1. Parallel lines.
      2. Perpendicular lines.
      3. Two parallel lines cut by a transversal line.
   B. Use numeric and geometric patterns to make generalizations about
      1. Angle relationships.
      2. Inequalities in triangles.
   C. Justify and apply triangle congruence relationships.
   D. Use congruence transformations to make conjectures about and justify properties of triangles.
   E. Identify, describe, and defend congruence between shapes.

IV. Polygons and quadrilaterals.
   A. Use numeric and geometric patterns to make generalizations about properties of
1. Polygons.
2. Angle relationships in polygons.

B. Based on explorations and use of concrete models and geometry software, formulate and test conjectures about properties and attributes of polygons and their component parts.

C. Explore symmetry in regular polygons, and analyze the symmetry of objects using the language of transformations.

Instructional Methods and/or Strategies

- Lecture/discussion with high level questions
- Modeling
- Lab activities using discovery by individual/group
- Peer learning.

Course Materials:

Texts & Supplemental Instructional Materials:

*SpringBoard Geometry Consumable Student Edition* from CollegeBoard

Key Assignments:

Assignments will be taken from the above books and other supplemental sources as well as various group activities including an origami project, discovery with constructions and tessellations.

Other Materials:

The student must bring the following to class daily:

1. Textbook.
2. Two-pocket folder (Each student will file all classwork, homework, quizzes or tests that have been returned during the course.)
3. Pens: one black or blue and one red pen.
4. Pencils with erasers
5. One spiral notebook or composition book.
7. Compass, ruler and protractor.

Course Grading

Assessment Methods and/or Tools

On-going assessment to include:

- Exams and quizzes
- Homework assigned on a regular basis to include mastery through open ended problems graded according to a rubric.
- Oral participation on daily warm ups and discussions
- Evaluation of lab activities
- Details of grading procedure presented to parents in opening letter.
**Classroom Behavior:**

The student is expected to demonstrate mature, polite behavior and extend courtesy to everyone at all times:

1. Actively participate, and respectful verbal and non-verbal interaction with all opinions must be shown at all times.
2. Since differing views will be expressed, the teacher and the student(s) will mutually maintain a safe environment for courteous dialogue.
3. Respect is to be shown for all CSUN property.
4. No food or beverages will be permitted in the classroom. Snacks must be eaten outside between the designated breaks.
5. Warnings for behavior / discipline problems will be given once. Any further problems will result in a phone call to the parent(s) or guardian(s) and possible dismissal from the program.

**SAEP Electronics Policy**

**Cell phones, music players and headphones are not permitted to be used during class hours.**

   a. Please put your cell phone on silent (NOT vibrate).
   b. No texting is allowed during class.

You will be given one verbal warning if the above is not followed. Should a second warning be necessary, your cell phone, music player and/or headphones will be confiscated and held by the teacher until after class. If a third time occurs, your cell phone, music player and/or headphones will be confiscated and held in the SAEP office and MUST BE PICKED UP BY A PARENT.
After reading through the syllabus, please sign and date and have your student return it to class. The signature constitutes your commitment to the class as we partner to make the next five weeks a life-long educational experience for your student.

**Student/ Parent Agreement:**
Please bring this signed and dated **Geometry Preview** syllabus agreement to class tomorrow.

If you do not understand any portion of this syllabus, or if you have any questions regarding this class, please do not hesitate to email the teacher.

We have read and understand the contents of this syllabus.

Student name ______________________________________________________

Student signature____________________________________________________

Date__________________

Parent/Guardian name _______________________________________________

Parent/Guardian signature_____________________________________________

Date_________________

Phone _____________________________________________________________

E-mail_____________________________________________________________