

3D Geometry Project

Instead of a final exam, I will let you discover the beauty in mathematics and share it with your classmates. Impress me with your creativity! Research a topic in solid geometry. Prepare a presentation to the class on your topic. Make 3D models. Work in two groups of three. Present your models to the class during the last week of classes. Your models will be displayed by the office. We will have a competition where the student body and faculty votes on their favorite model.

Models: you may use any type of materials, some suggestions: straws, toothpicks, marshmallows, clay, poster board

Some topics:

Geometric Sculptures www.georgehart.com

Geometry on a sphere (non-Euclidean geometry) (ask me about a riddle for this one)

Semi-regular polyhedral

Mathematical origami

Selected Geometry Sites on the Internet

Mathematical Knitting <http://www.toroidalsnark.net/mathknit.html>

<http://forum.swarthmore.edu/geometry/selected.geom.html>

<http://forum.swarthmore.edu/geometry/coll.selected.geom.html>

Geometry Junkyard, <https://www.ics.uci.edu/~eppstein/junkyard/topic.html>

Paper Models of Polyhedra, <http://www.korthalsaltes.com/>

Chemist's Art Gallery, <http://edchemistry.tripod.com/graphics.htm>

Geometry in Action (real world applications of geometry),

<https://www.ics.uci.edu/~eppstein/geom.html>

Expectations:

Topic chosen is about solid or 3D geometry

You must have your topic pre-approved!

Quality visual aid(s)

Vocabulary use: correct terminology (new vocab is a plus)

Expertise: learn enough about your topic to answer questions from an ignorant audience (your class and me)

Class Presentation: organized, clear, interesting voice and manner

Originality: everyone must choose a different topic or a different aspect of a topic

Timeliness: you will lose points if you are not prepared or absent or if you are absent for other presentations.

AP Calculus Final Project 2014

Name _____

Score _____

Topic

0	-	√-	√	√+	+
Not done	Below standard on a major point or a major mistake	Below standard on a minor point or a small mistake	Meets standard, all areas correctly performed	Above standard on a minor point or in small way	Above standard on a major point or in an impressive way
-10	-7	-4	0	+3	+5

Criteria	
Topic: Topic chosen is about solid or 3D geometry	
Research on mathematical topic: explain more than how to put together your model	
Quality visual aid(s): shows time, effort and creativity	
Vocabulary use: correct terminology (new vocab is a plus)	
Complexity: you should demonstrate that you learned something new about mathematics (MS math is a minus, HS math is a check, something we've never done in HS is a plus)	
Mathematics: you need to explain/discuss the mathematics that is involved in your topic. How is it computed/derived? Are there relationships with other math topics? What is it used for?	
Expertise: learn enough about your topic to answer questions from an ignorant audience (your classmates and me), especially be able to answer questions from your classmates.	
Class Presentation: organized, clear, interesting voice and manner	
Originality: everyone must choose a different topic or a different aspect of a topic	
Competition: plus points to the winner of the competition	
Timeliness: you will lose points if you are not prepared or absent for your scheduled presentation (-10 points) Learning from others: attendance (missed class -5 points/ -10 points for the double period class)	

95 is the baseline score—met the standard in each category. If you want a higher score, be prepared to impress me!