

10th Grade Geometry - Capstone Unit: Design

Bronx Early College Academy

Christopher J. Huson PhD

13 May 2019

Capstone.1 Introduction & draft design Monday 13 May

Capstone.2 Design drawing (Geogebra) Tuesday 14 May

Capstone.3 Complete draft (MS Word calcs) Wednesday 15 May

Capstone.4 Complete writeup (peer edit) Thursday 16 May

Capstone.5 Volume, density, trig quiz Friday 17 May

GQ: How do we design a household lamp?

CCSS: MP.4 Modeling with mathematics

Capstone.1 Monday 13 May

Do Now: Solids handout

1. Simplify compound object into basic shapes
2. Use formulas to calculate volume
3. Convert to weight using density and cost using price

Lesson: Steps in design, manufacture, & sale of consumer goods

Capstone paper: Geogebra diagram (optional hand drawing), text description, volume, weight, & cost calculations. (MLA format)

Outline & sketch due today in notebook

Homework: Problem set handout, test corrections due Wednesday

Capstone inspiration image & reflection (email to husonbeca@gmail.com)

GQ: How do we write up the design of a consumer item?

CCSS: MP5 Use appropriate tools strategically: dynamic geometry software **Capstone.2**

Tuesday 14 May

Project: Design a household lamp fixture

1. Write up the design and specifications of a household lamp
2. Keep it simple: leave out the shade and electrical parts
3. Estimate its volume, weight, and materials cost
4. Draw in Geogebra, compile in Word: add heading & title, text, and formulas using Microsoft's equation editor
5. Email me: Last-Title.pdf, with subject line & message
6. Rubric: correct, aesthetics, MLA & email standards

Task: Draw in Geogebra (spicy: use 3-D). Email .png file to me.
Write dimensions in notebook. (draft calculations for homework)
Homework: Problem set handout, test corrections due tomorrow

GQ: How do we complete a professional design proposal?

CCSS: MP5 Use appropriate tools strategically: Microsoft Word wordprocessor and equation editor

Capstone.3 Wednesday 15 May

Project: Largely complete write up of lamp design

1. Header, title, MLA formatting in Microsoft Word. (pdf final)
2. Simple text description of lamp (optional: sales language)
3. Design drawing, clear dimensions
4. Show calculations of volume, weight, and materials cost using Microsoft's equation editor
5. Email me: Last-Title.pdf, with subject line & message
6. Rubric: correct, aesthetics, MLA & email standards

Notebook check: dimensions and volume, weight, & cost calcs

Task: Print draft of paper. Should be almost complete.

Homework: Problem set handout

GQ: How do we complete a professional design proposal?

CCSS: MP5 Use appropriate tools strategically: Microsoft Word wordprocessor and equation editor

Capstone.4 Thursday 16 May

Project: Complete write up of lamp design

1. Header, title, MLA formatting in Microsoft Word. (pdf final)
2. Simple text description of lamp (optional: sales language)
3. Design drawing, clear dimensions
4. Show calculations of volume, weight, and materials cost using Microsoft's equation editor
5. Email me: Last-Title.pdf, with subject line & message
6. Rubric: correct, aesthetics, MLA & email standards

Peer review

Task: Final paper due by 10:00 tonight, to husonbeca@gmail.com

Homework: Problem set handout

GQ: How do we calculate volume & weight of 3-D shapes?

CCSS: HSG.GMD.A.3 Use volume formulas to solve problems Capstone.5 Friday 17 May

Do Now handout: Volume, density, & trig problems

Classwork review

Assessment: Pop quiz

1. Sector areas and arc lengths; compound areas
2. Volume formulas, compound shapes, density problems
3. Unit conversions, rounding
4. Trigonometric situations
5. Solving for a missing input given a formula result

Homework: Cumulative review weekend packet