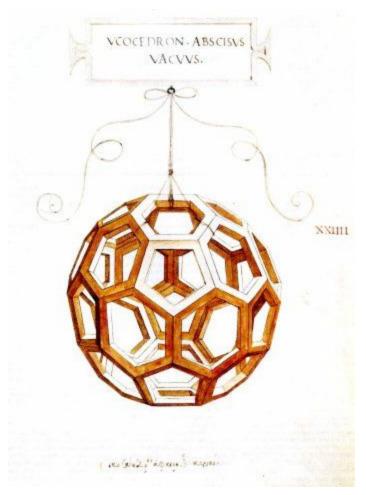# Pacioli's Lights



**Essential Question:**

How can I apply math to lighting design?

How can I use technology to revise my work?

**Brief Description:**

Students will be explored by the three dimensional objects that Leonardo da Vinci and Luca Pacioli created for the 1509 book *The Divine Proportion.* They will design, build, and ***sell*** a polyhedra light fixture of their own creation. Using a corded light socket and light bulb sold at IKEA, students will make the geometric shade to disperse, beautify and enhance the light source. The final shade will be made of a plywood and cut out using the HTMNC Laser Cutter. These pendant lights will then be on display in the MakerSpace at HTMNC and sold at a San Marcos Art Walk Pop up Shop.



**Products:**

- Sketches and sketch models
- Mock-up in similar materials
- Final prototype capable of being mass produced
- Marketing and financial product information
- Pop Up Shop

**Essential Skills:**

**Design Process:** Students will work though the design process to make this product. From ideation to prototype to final production, students will learn through making.

**Technology:** Students will use the vector design software, Adobe Illustrator, to program a computer controlled laser cutter.

**Collaboration:** Students will create these objects in groups of two

**Exhibition: TBD (Tentatively scheduled for ).**

**General Timeline:** Subject to change

| October 27-28 | ● Adobe Illustrator Basics, formatting, file set-up |
|---|---|
| November 1-3 | ● Polyhedra Net shapes (2D) |
| November 4-9 | ● Polyhedra Mock Ups |
| November 10 | ● Critique |
| November 14-18 | ● Final Production |

Resources:
1. Inspiration lights https://www.google.com/?gws_rd=ssl#q=laser+cut+chandelier
2. Leonardo's illustrations http://www.georgehart.com/virtual-polyhedra/leonardo.html
3. Laser Cut Soccer Ball light fixture (Truncated Icosedron)
   http://www.instructables.com/id/Lasercut-and-3d-printed-Truncated-Icosahedron-lamp/?ALLSTEPS
4. Paper Polyhedra models http://www.korthalsaltes.com/
5. Animated Polyhedra Templates http://www.mathsisfun.com/geometry/polyhedron-models.html
6. Geometric Vocabulary and equations http://mathworld.wolfram.com/Polyhedron.html