


The image shows two blue 3D printed lattice structures on a wooden surface. The structures are made of thick blue filament and form a grid-like pattern. One structure is in the foreground, and another is slightly behind it. The background is a light-colored wooden surface with a visible grain.

EVELYN SANDER, GEORGE MASON UNIVERSITY

ACTIVE LEARNING: 3D PRINTING



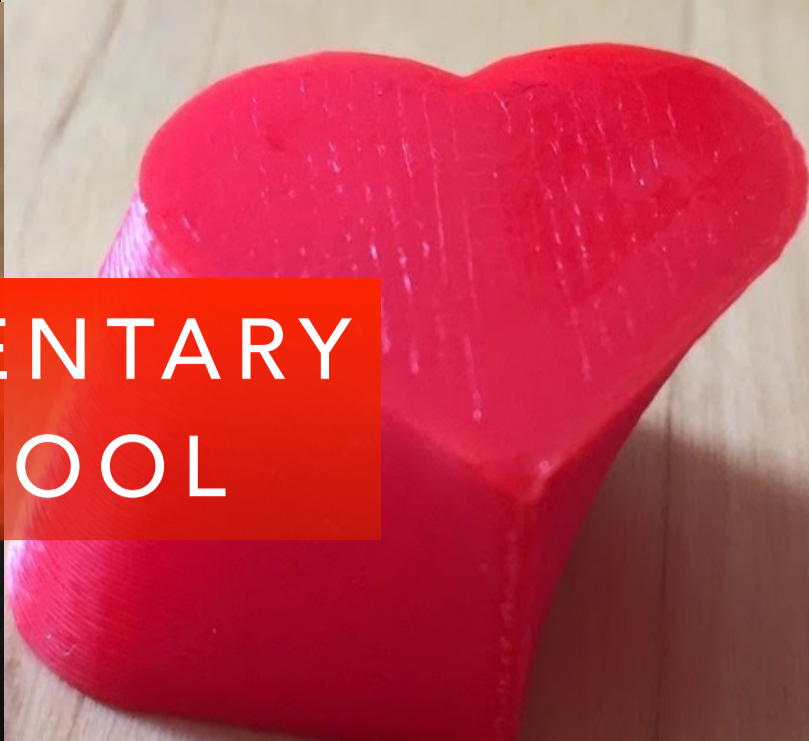
NATIONAL TREASURES, LOW
COST PROSTHETICS,
TOOTHPASTE SQUEEZERS,
CHOCOLATE, REPLACEMENT
BANANA, GUNS

3D PRINTING: FROM SUBLIME TO RIDICULOUS

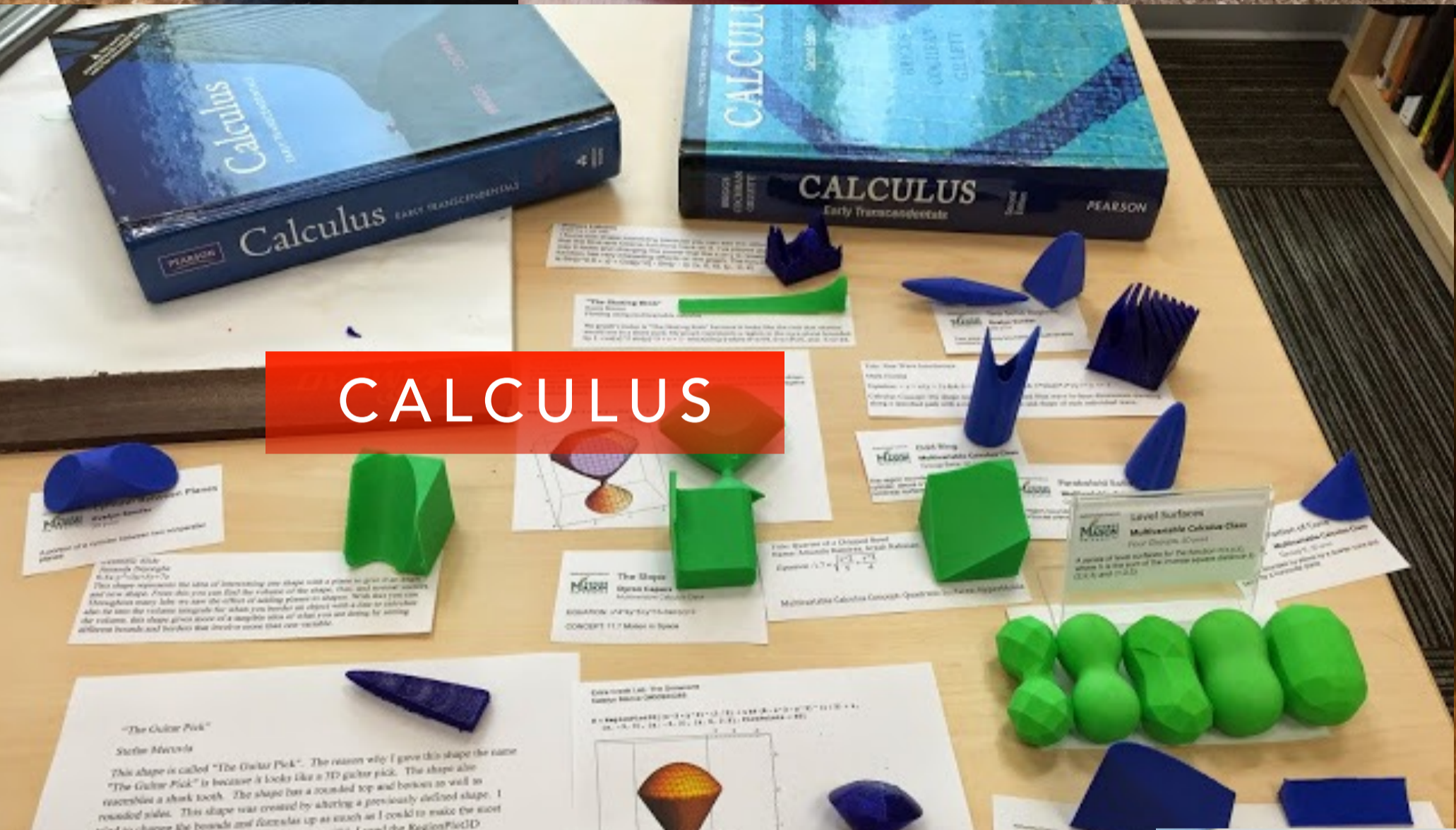
HIGHLY VERSATILE



ELEMENTARY SCHOOL



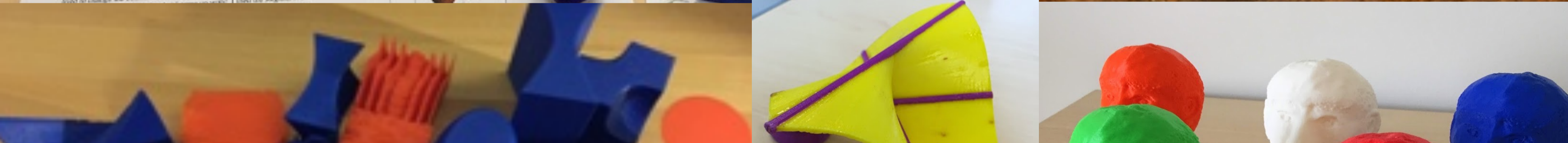
MIDDLE SCHOOL



CALCULUS



RESEARCH



EVERYONE CAN DESIGN A MODEL

ACCESSIBLE AT ALL LEVELS



- Assistant: Ratna Khatri
- Accessibility: Tactile Graphs
- Outreach:
 - Middle School Girls Camp
 - USASEF Festival
- Education:
 - Multivariable Calculus
 - Mathematics Through 3D Printing

[HTTP://GMUMATHMAKER.BLOGSPOT.COM](http://gmumathmaker.blogspot.com)

GMU MATH MAKERLAB

Mandelbrot and Julia Sets

Math 498: Mathematics through 3D Printing
Course Instructor: Dr. Evelyn Sander



Nicole Van Oort



Jonathan Tarr



Kope Roberts



Henry Delgado



Anneliese Slaton



Mandelbrot and Julia Sets indicate the behavior of iterated polynomial maps in the complex plane. The Mandelbrot set is the set of parameter values such that iterates of the origin stay bounded under the quadratic map z^2+c . For a fixed value of c , the filled Julia set is the set of all points which stay bounded under the same quadratic map. These prints give a sense for how long it takes for iterates to diverge.

Further information: <http://bit.ly/1T2u4AN>



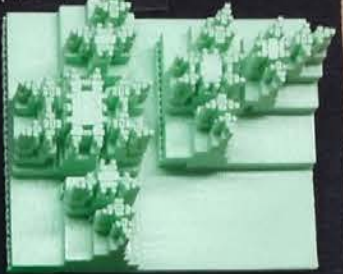
Iterated Function Systems and Fractals

Math 498: Mathematics through 3D Printing
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Further information: <http://bit.ly/1T2u4AN>



Mae Markowski



Henry Roberts

Anneliese Slaton



Conor Nelson



Henry Delgado



Nicole Van Oort

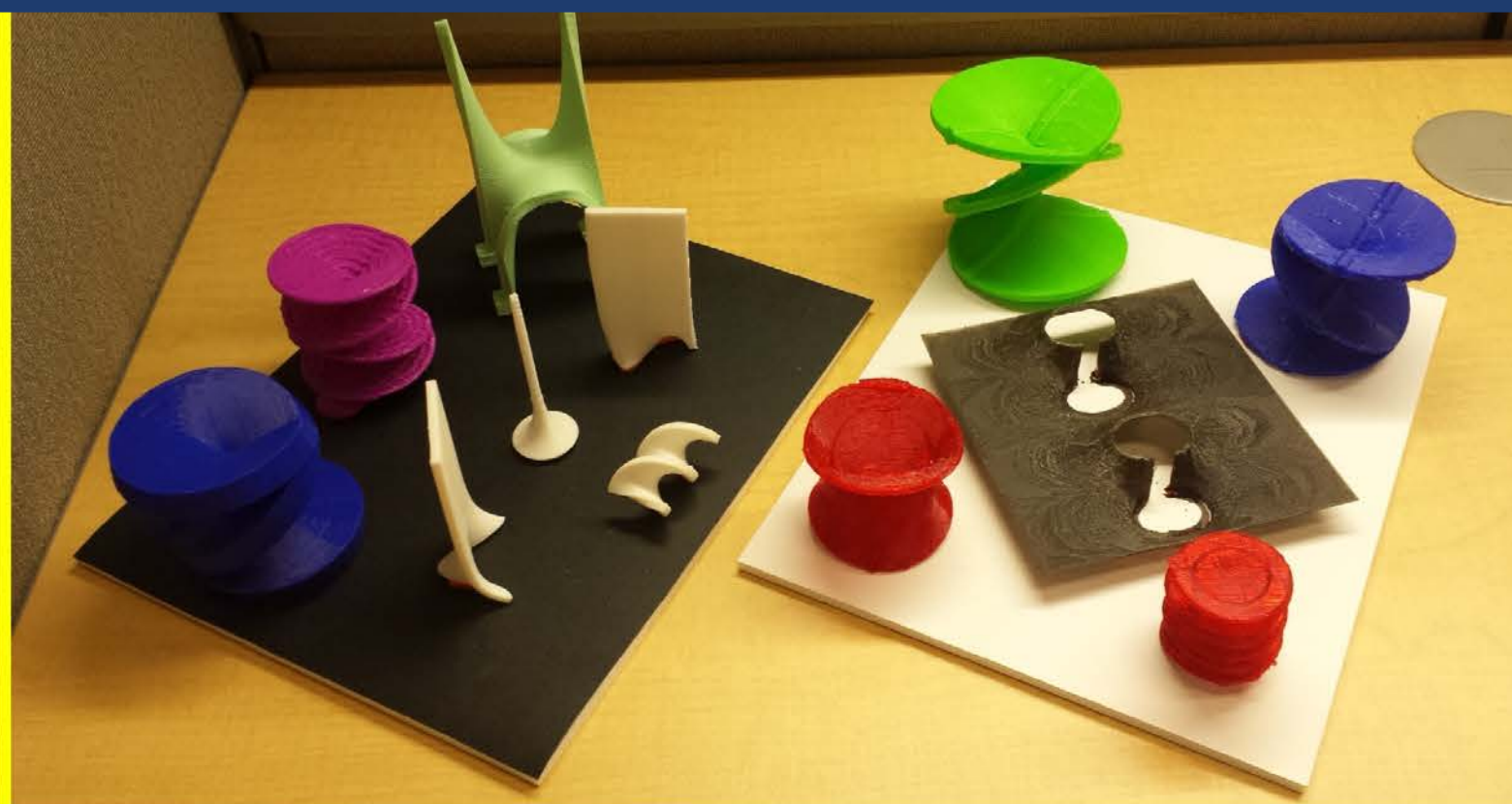


Mae Markowski



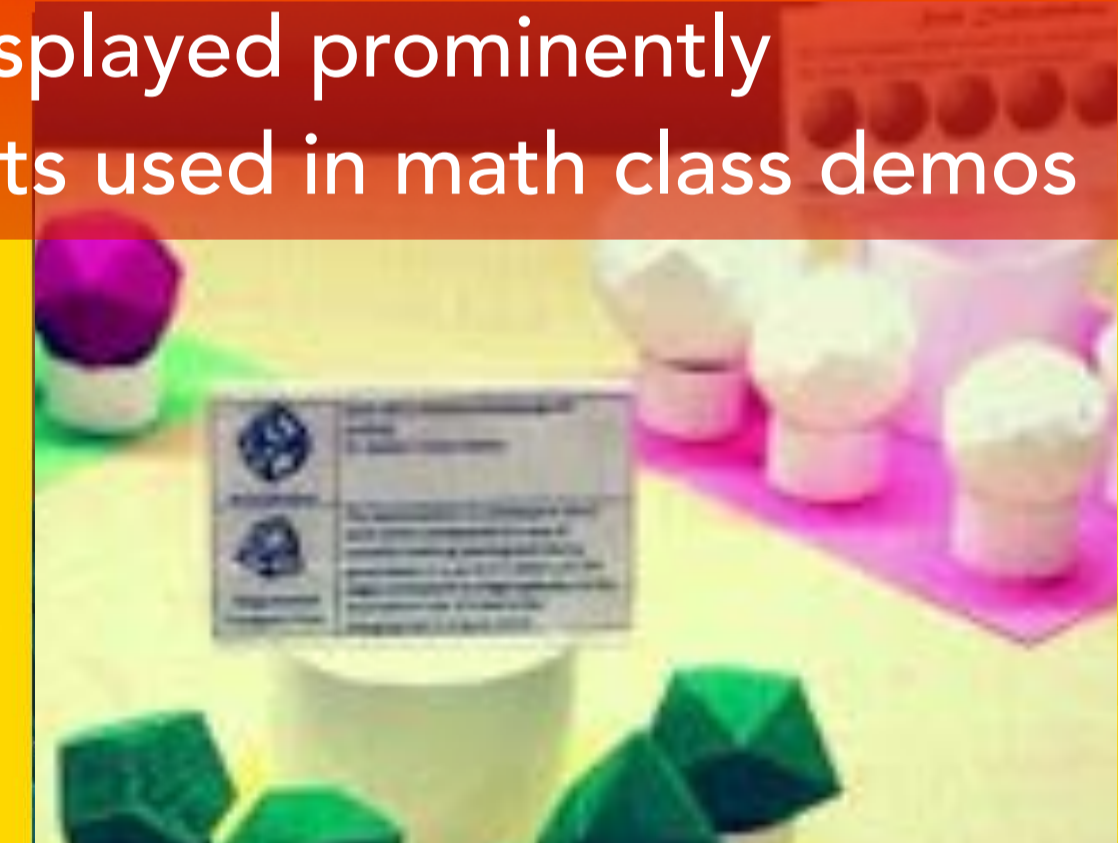
Jonathan Tarr

ONE MATH CONCEPT PER WEEK, ONE PRINT PER WEEK
BRING ABSTRACT CONCEPTS TO LIFE





- Students involved in all aspects of design and printing
- Models displayed prominently
- Some prints used in math class demos



A SENSE OF PURPOSE MAKES US HAPPY AT WORK, DAN ARIELY, DUKE
PRIDE OF CREATION

The Rhombicosidodecahedron: More than just a fancy name

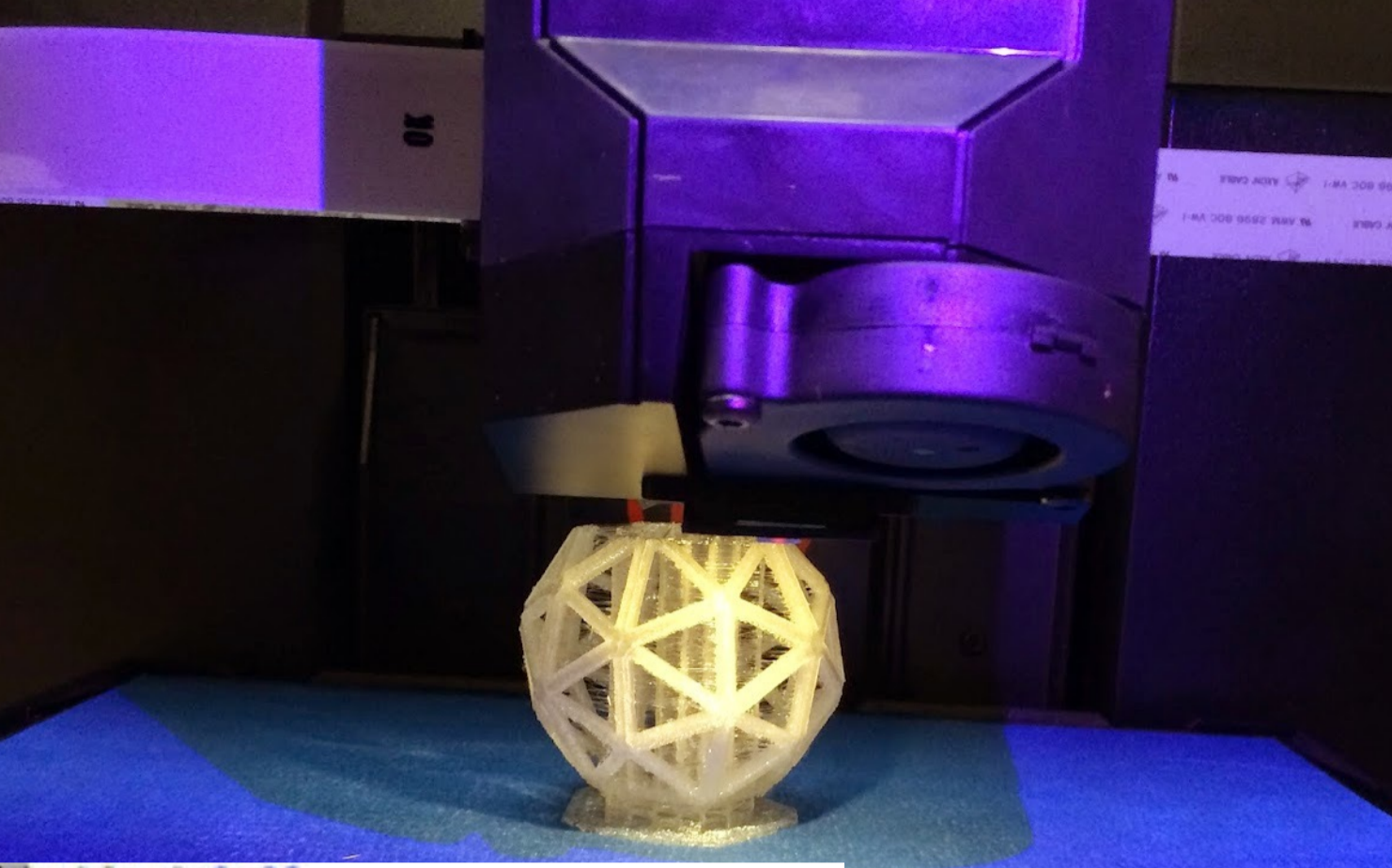
The Rhombicosidodecahedron: More than just a fancy name

by Anneliese Slaton
MATH 493: Math Through 3D Printing

If someone asked me if I wanted to see their rhombicosidodecahedron, I'd be skeptical. Did they have a dinosaur? A bug?? Some other terrifying mystery of nature??



- New mathematics
- Coding skills
- Design and production software
- Printer hardware
- Writing and Speaking: Blog, Oral, Formal paper, Thingiverse, Poster



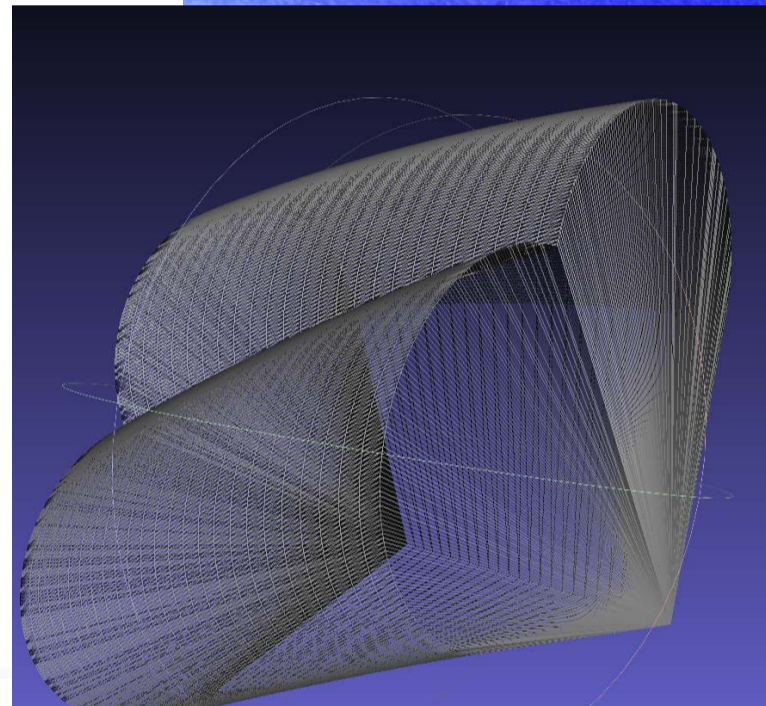
```

module rho(sc){
  scale(sc)
  import("rhombi.stl");
}

module del(sc){
  scale(sc)
  import("delt.stl");
}

Intersection() {
  del(12.3);
  rho(15);
}

```



Wednesday, April 6, 2016

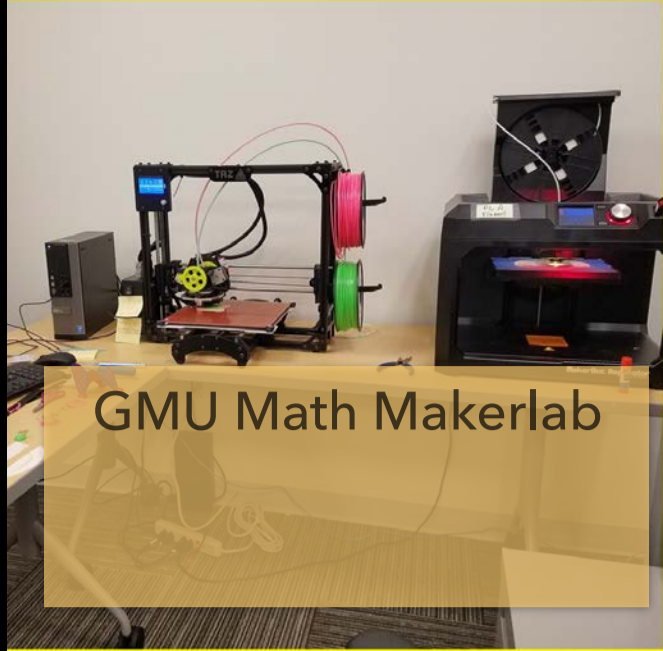
Fun with Fractals

APPLYING MULTIPLE SKILLS ENHANCES MASTERY, ROBERT GAGNE

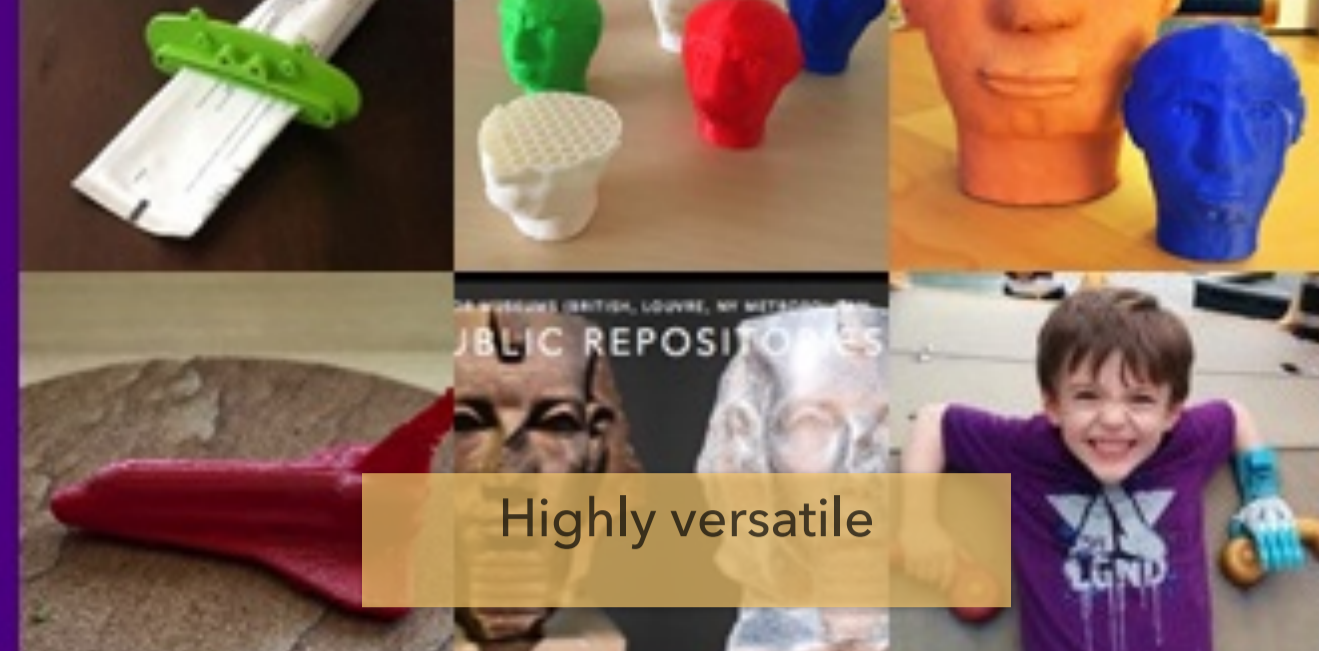
SYNTHESIS

What are

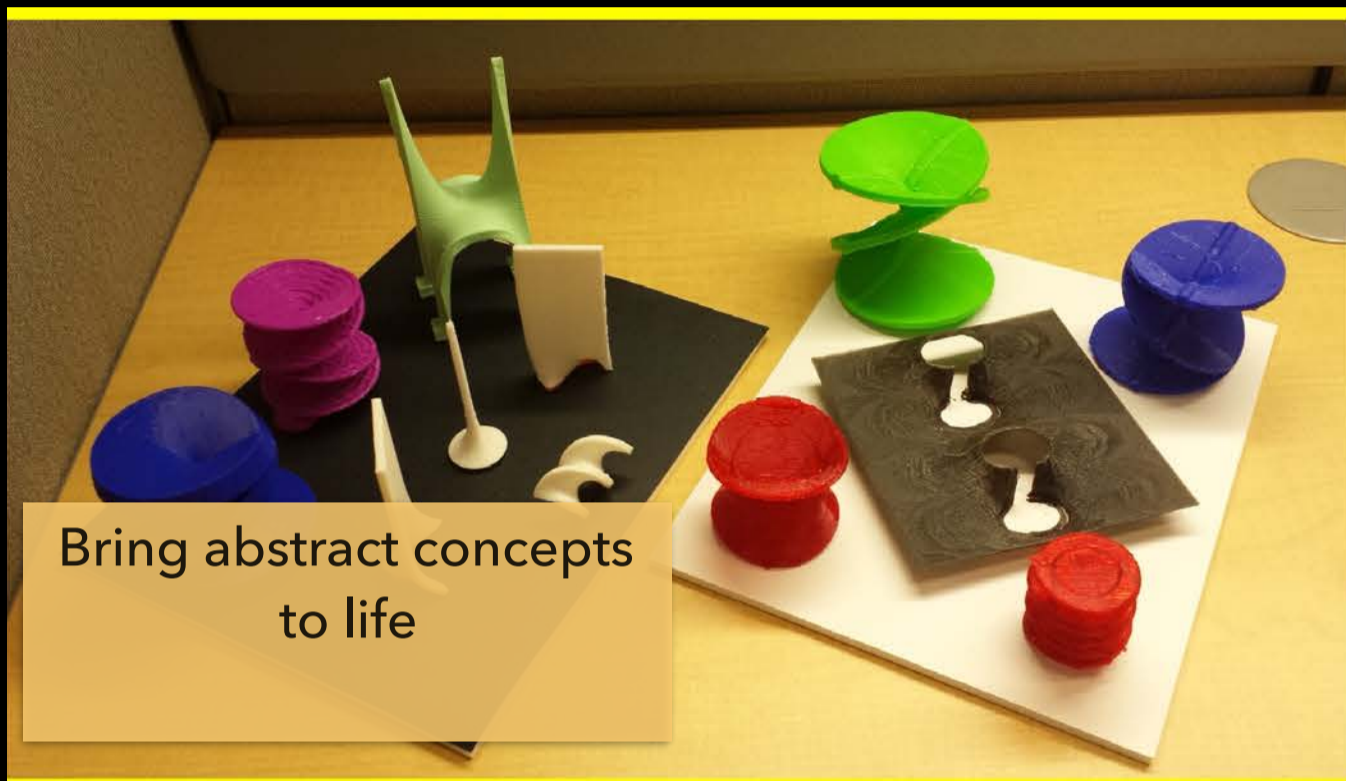
Iterated functions are a way of constructing Fractals.



GMU Math Makerlab



Highly versatile



Bring abstract concepts to life



Pride of creation sense of purpose

Active Learning: 3D Printing

Evelyn Sander esander@gmu.edu

George Mason Department of Mathematical Sciences &

GMU Math Makerlab <http://gmumathmaker.blogspot.com>



QUESTIONS AND

THANK YOU!

