

3D PRINTING IN THE CLASSROOM

Josh Ajima - @DesignMakeTeach
DesignMakeTeach.com

K12 3D PRINTING EXPERT

ANNUAL GUIDE TO 3D PRINTING

Make:

26 3D PRINTERS TESTED!

Local Motors prints the future for your driveway

DREMEL'S IDEA BUILDER REVIEWED

Full Reviews of our Top 10 Printers

SNEAK PEEK!

Get the complete issue, with reviews of all 26 printers tested, at makershed.com

3D PRINT YOUR CAR*

*(YES, REALLY)

Behind the Maker Tech in Disney's Big Hero 6

MAKER MEDIA

makezine.com






MakerBot Thingiverse

DASHBOARD EXPLORE CREATE

Enter a search term

You



Thingiverse Featured

DesignMakeTeach's MOM Gimbal prints in place quickly and easily. Make this nifty token of appreciation just one of many ways you'll show you care this Mother's Day.

Learn More


3D PRINTING FOR BEGINNERS

Large build volume w MakerBot Replicator

3D PRINTERS 3D PRINTING PROJECTS 3D SOFTWARE BEGINNERS CORNER MATERIALS NEWS

11 Experts Share Their Top 3D Printing Beginner Tips

May 6, 2015 | Beginners Corner | No comments



3D PRINTING BEGINNER TIPS

11 Experts Share Their Secrets


Let's be honest, 3D printing can be quite tricky. Home 3D printing technology is still immature and 3D printing beginners who just bought their first machine are faced with a multitude of challenges when it comes to getting reliable and repeatable 3D print results.

It is clear that a bit of expert guidance won't hurt! That's why we reached out to some of the top 3D printing experts and asked them the following question:


HEROES OF 3D PRINTING

Designers and Artists: Series #1


Collect Them All




PrettySmallThings




@Dizingof




@mathgrl




@ibudmen




THE INCREDIBLE 3D PRINTING GUMBALL GALLERY




@ChristinaChun



@fredini



@TheNewHobbyist



@CarlaDiana_

Learn more at DesignMakeTeach.com/3DGumballGallery

WARNING: Not for children under 3 years old.

adafruit

SHOP BLOG

AUGUST 21, 2014 AT 12:30 AM

3D Printing Projects for DesignMakeTeach #B #3DThursday #3DPri

What better way to collect a few handy leads for favorite 3DP educators! I sent a call out to a few have been receiving back lunchboxes full of ideas

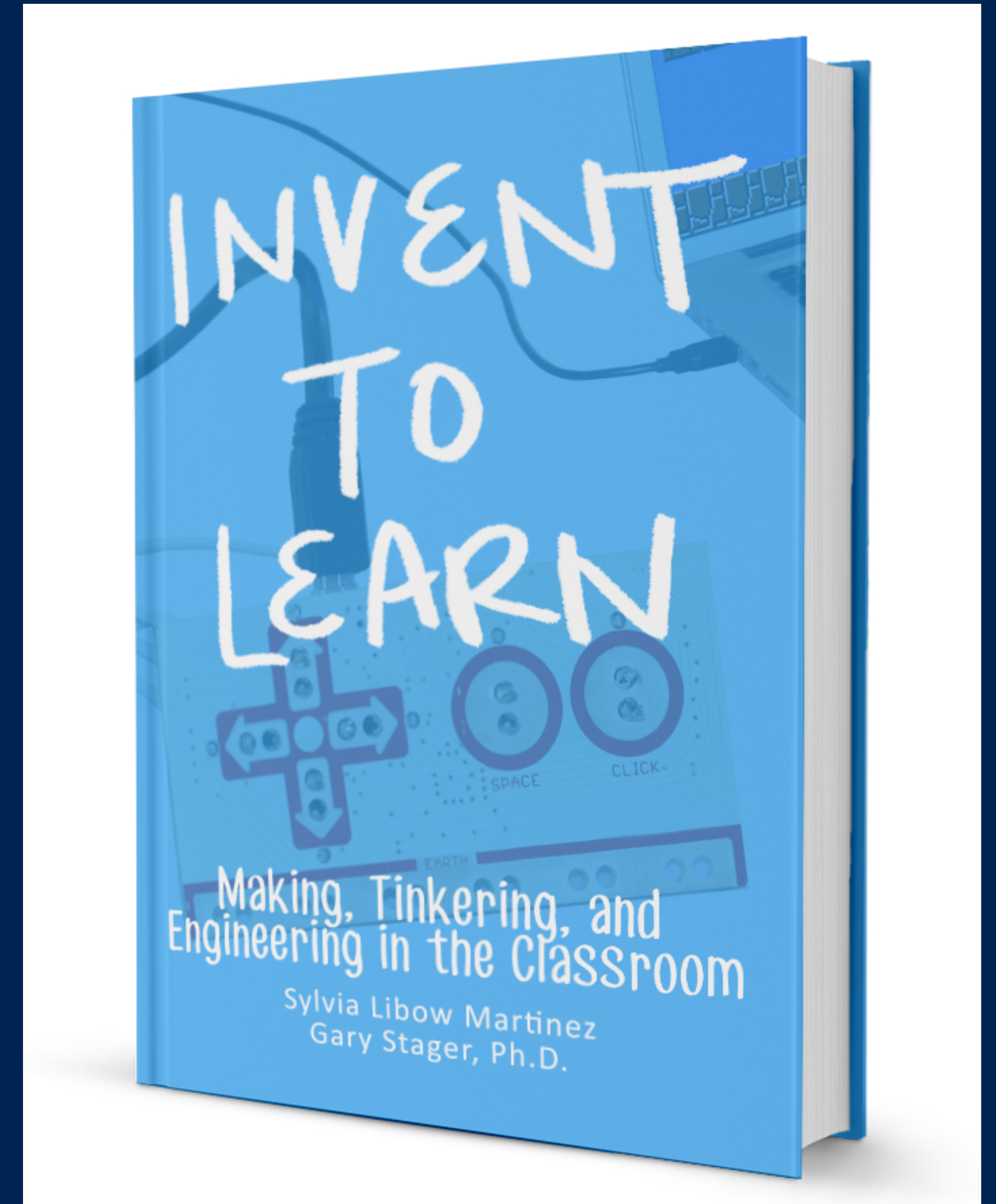
@DesignMakeTeach - DesignMakeTeach.com

3D PRINTING IS HARD

3 GAME CHANGERS

InventToLearn.com/resources

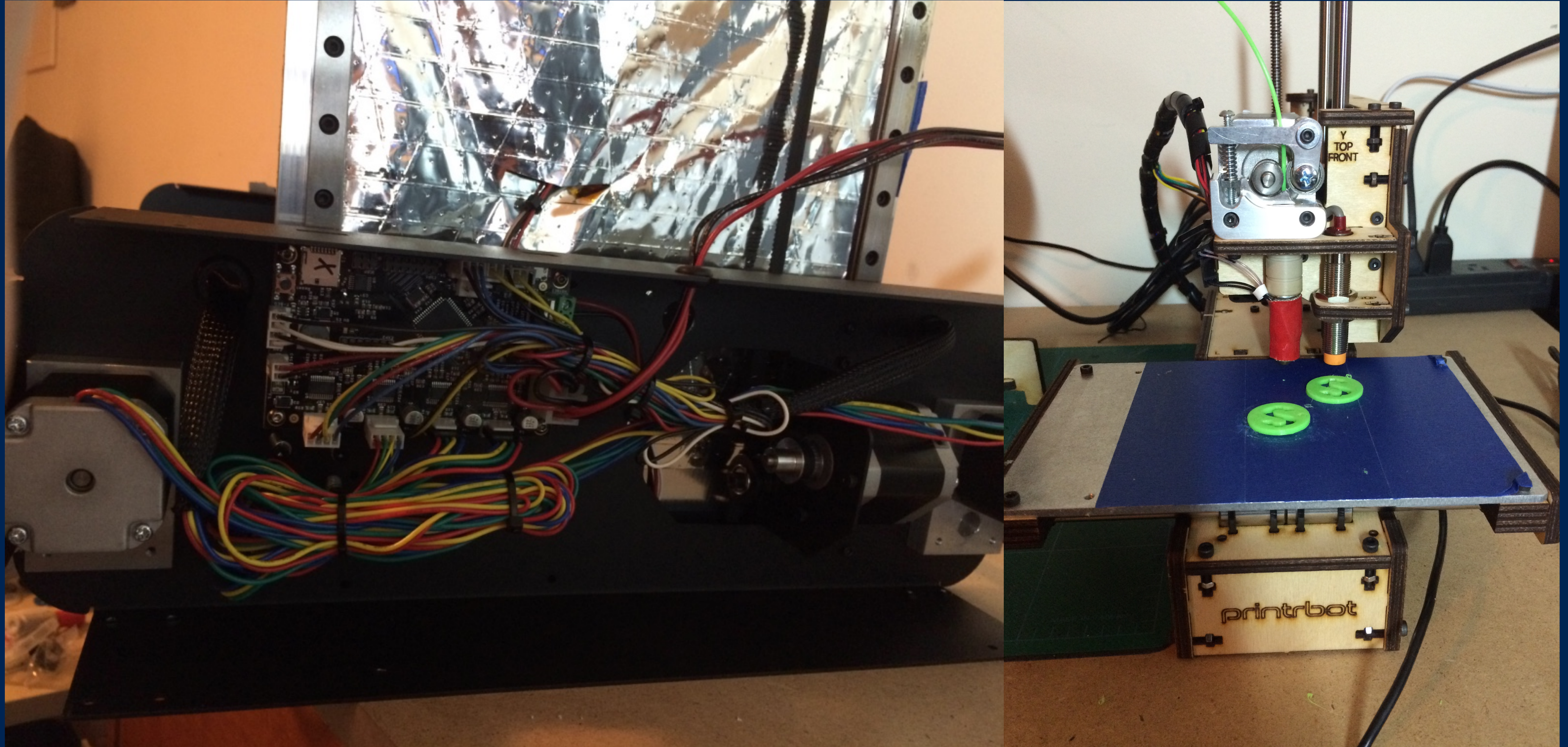
- Physical Computing
- Programming
- Fabrication



DIGITAL FABRICATION

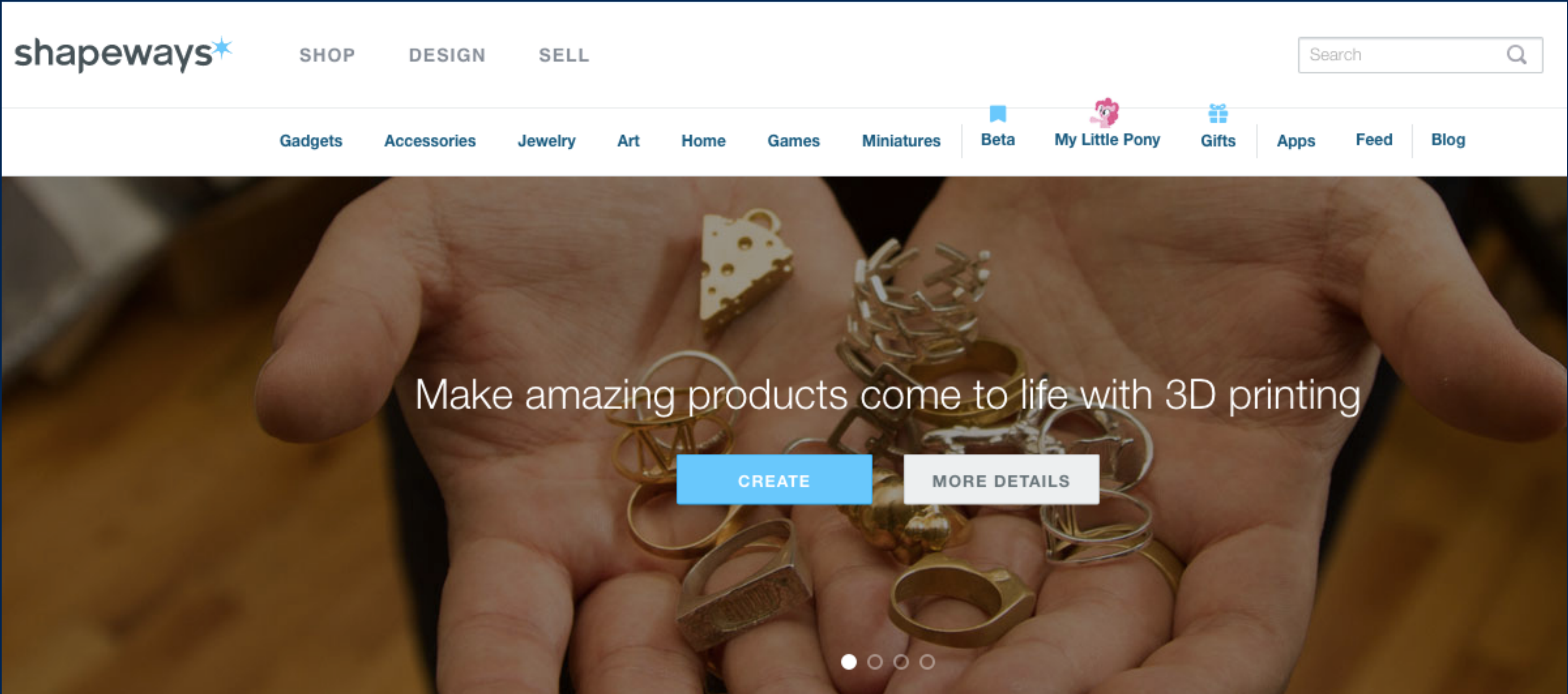


3D PRINTER



3D PRINTING SERVICE

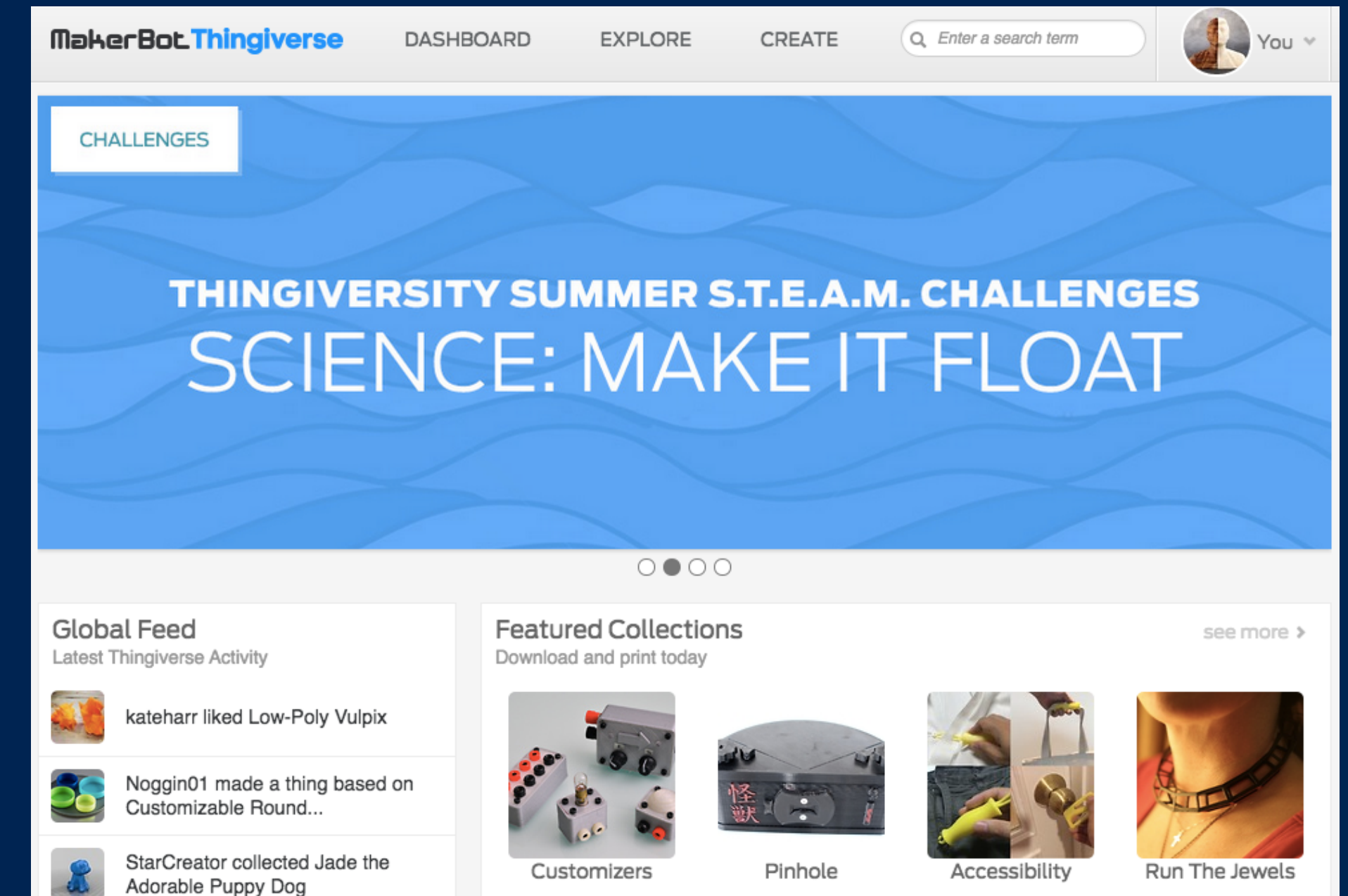
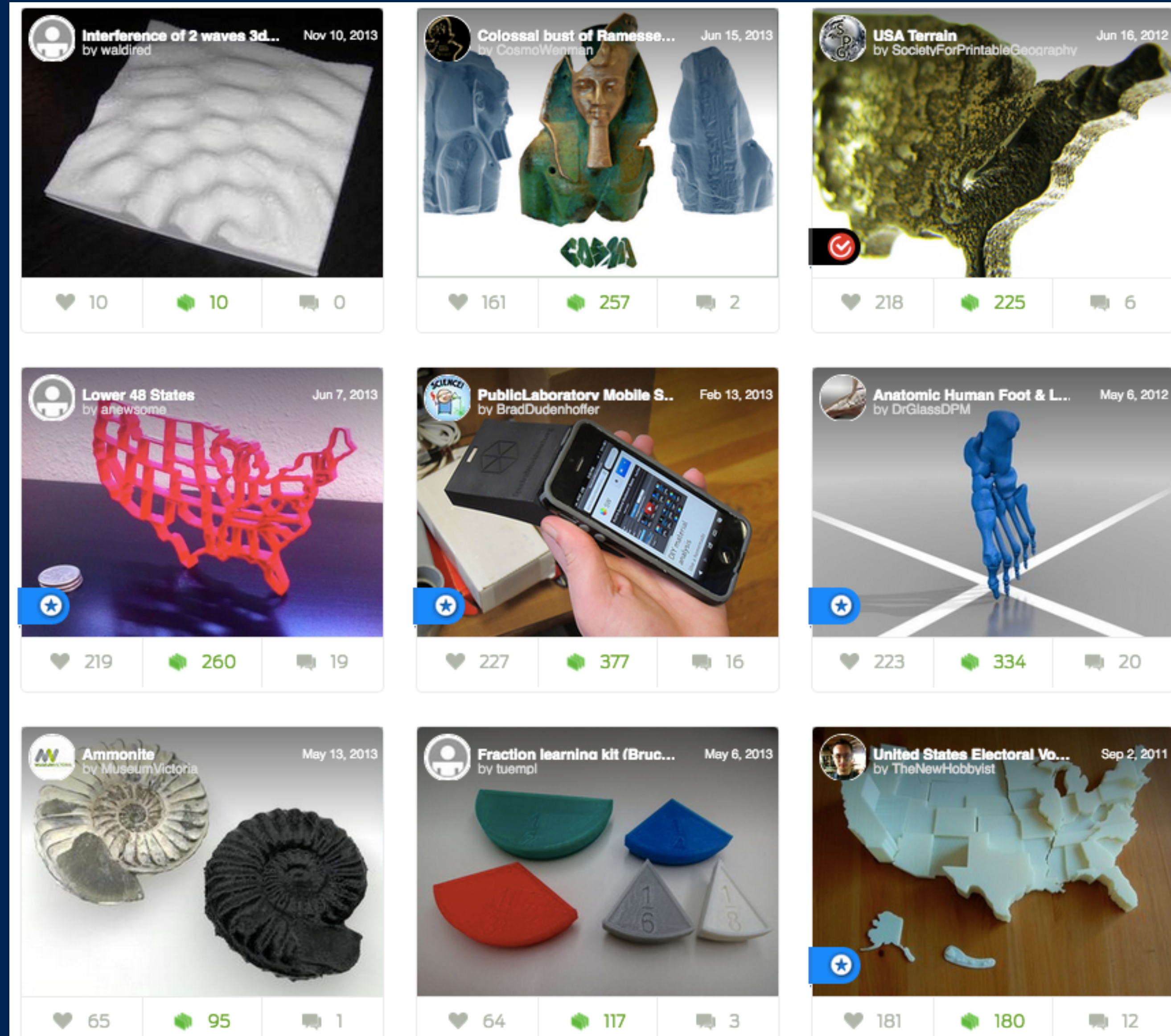
shapeways.com



3D MODEL -> STL -> G-CODE -> 3D PRINT

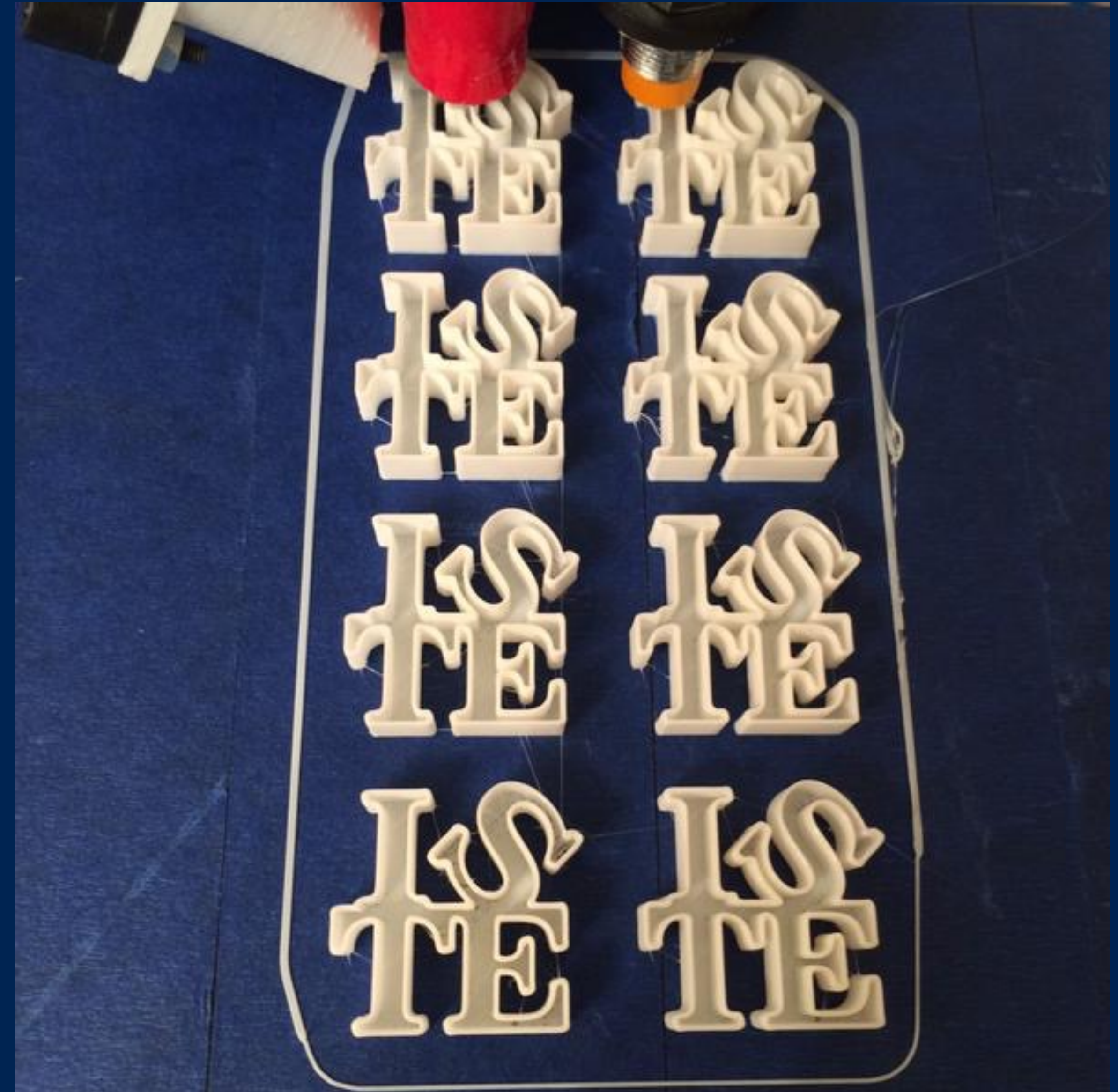
THINGIVERSE.COM


3D Printing Repository



CUSTOMIZATION

<http://www.thingiverse.com/thing:305087>



**NASA 3D Resources (Beta)**

[Home](#)
[3D Models](#)
[3D Printing](#)
[Images and Textures](#)
[Visualizations](#)
[Contributors](#)
[3D in the News](#)

[Related Links](#)

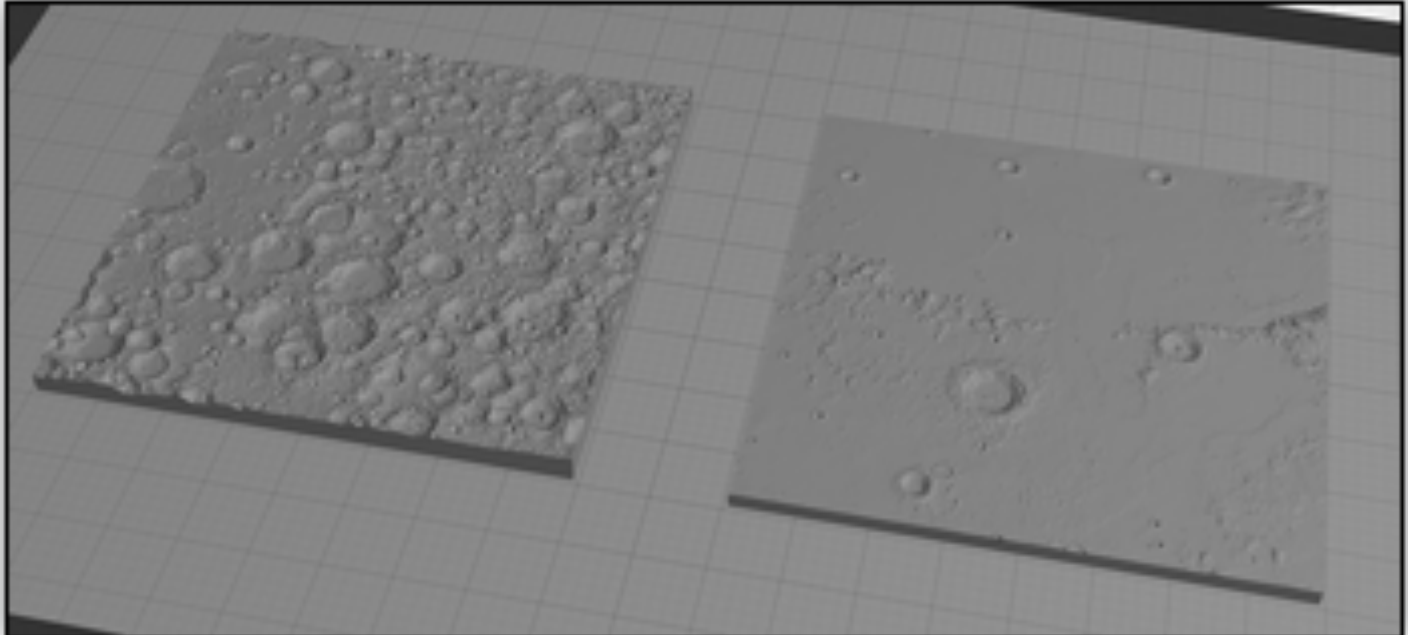
National Institutes of Health 3D Print

Article: "Printing Space: Using 3D Printing"

3D Printing in space

Lunar Mapping and Modeling Portal

Moon Nearside Farside



Description

Author/Origin: Doug Ellison / NASA-JPL

Relevant Mission: [LRO](#)

Date Added: June 26, 2014

This two STL files demonstrate the differences between the near and far side of Earth's Moon. The near side is smoother due to large lava flows that filled in many craters billions of years ago. Printed at their default size (8cm across) these models cover an area approximately 400km on a side at a scale of 5 million to one (1 cm = 50 km) Data Credit : NASA/Goddard

[Download .stl file - 12.36 MB](#)

NIH 3D PRINT EXCHANGE

3dprint.nih.gov/

U.S. Department of Health and Human Services — National Institutes of Health

Login

NIH NIH 3D Print Exchange

DISCOVER SHARE CREATE LEARN ENGAGE NEWS & EVENTS ABOUT SEARCH



DISCOVER



SHARE



CREATE



LEARN



ENGAGE

3D printing technology is advancing at a rapid pace, but it is difficult to find or create 3D-printable models that are scientifically accurate or medically applicable. The NIH 3D Print Exchange provides models in formats that are readily compatible with 3D printers, and offers a unique set of tools create and share 3D-printable models related to biomedical science.

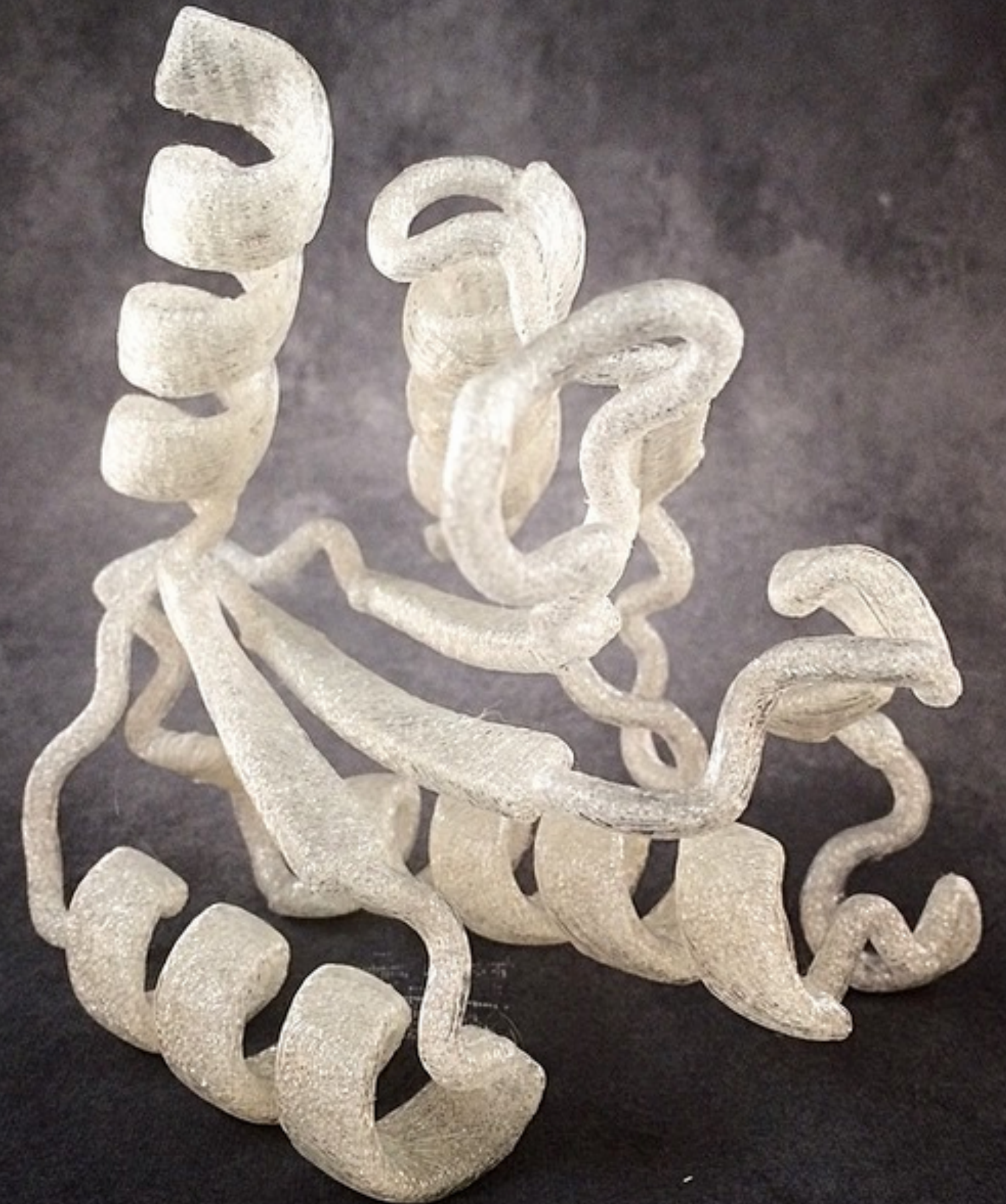
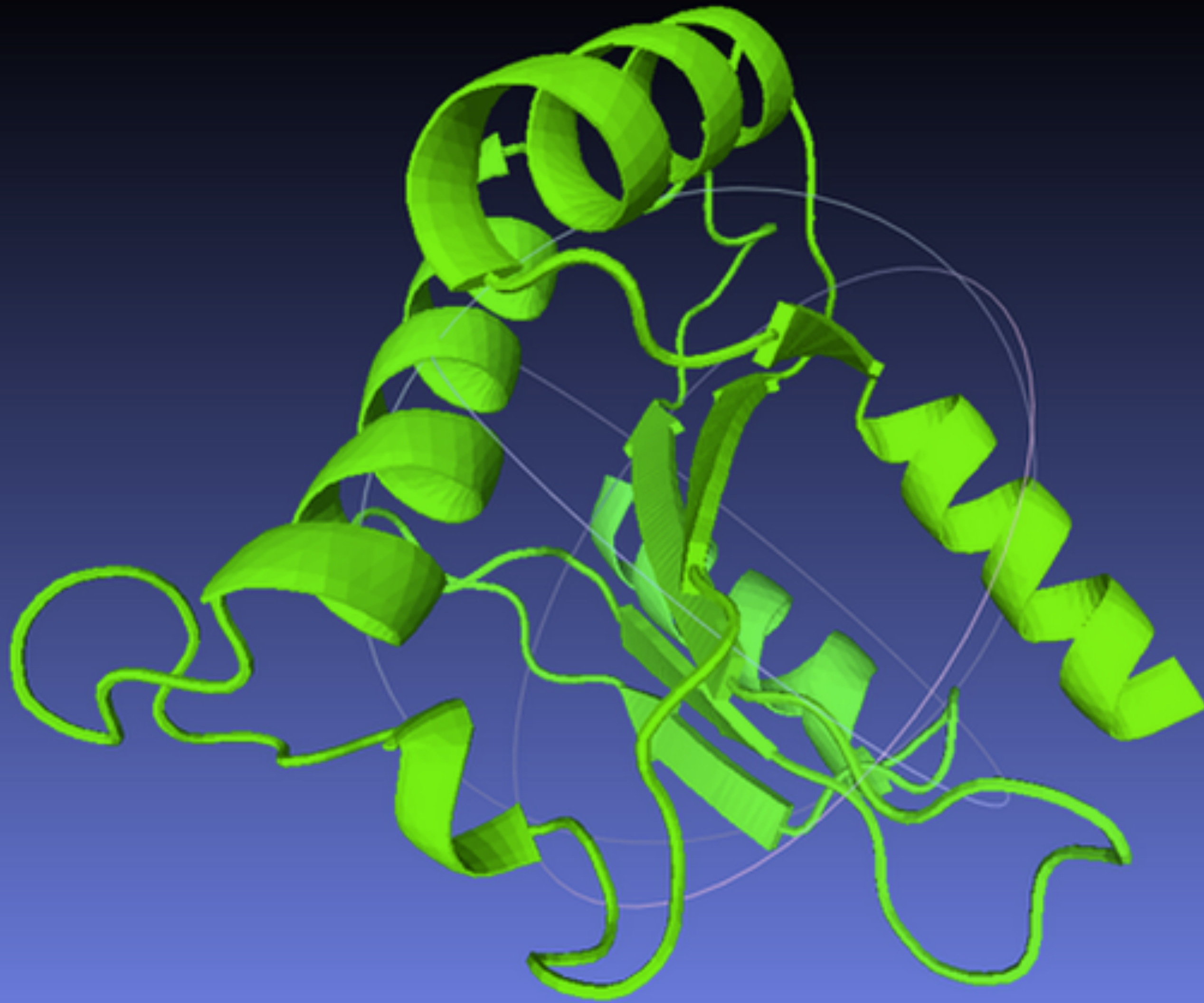
The NIH 3D Print Exchange




@DesignMakeTeach - DesignMakeTeach.com

PROTEIN MODEL

Student Designed Model



 Smithsonian X 3D BETA

[Log In](#) [Register](#)

[Browse Models](#)

[Browse Tours](#)

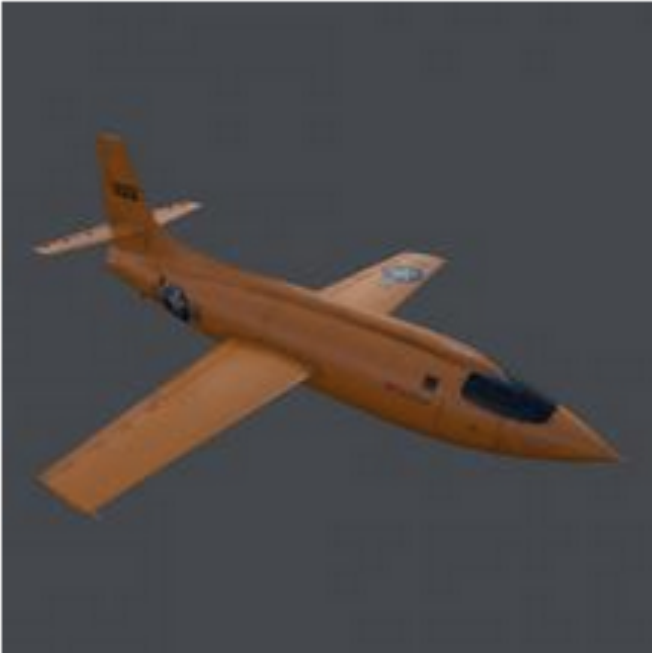
[Video Gallery](#)

[Educators](#)

[Conference](#)

[About](#)


Bell X-1



[Tours](#) [Downloads](#) [Info](#)

National Air and Space Museum


Figure of a dancer



[Tours](#) [Downloads](#) [Info](#)

Cooper-Hewitt National Design Museum


Kylix



[Tours](#) [Downloads](#) [Info](#)

Cooper-Hewitt National Design Museum


Incense burner in the form of a mountain (boshanlu)



[Tours](#) [Downloads](#) [Info](#)


Freer Gallery of Art

Lidded ritual ewer (zun) in the form of an elephant with masks and dragons




[Tours](#) [Downloads](#) [Info](#)

Collection Teaser



[Tours](#) [Downloads](#) [Info](#)


Fossil Dolphin (Skull)



[Tours](#) [Downloads](#) [Info](#)

Smithsonian Tropical Research

Fossil Dolphin (Scapula)



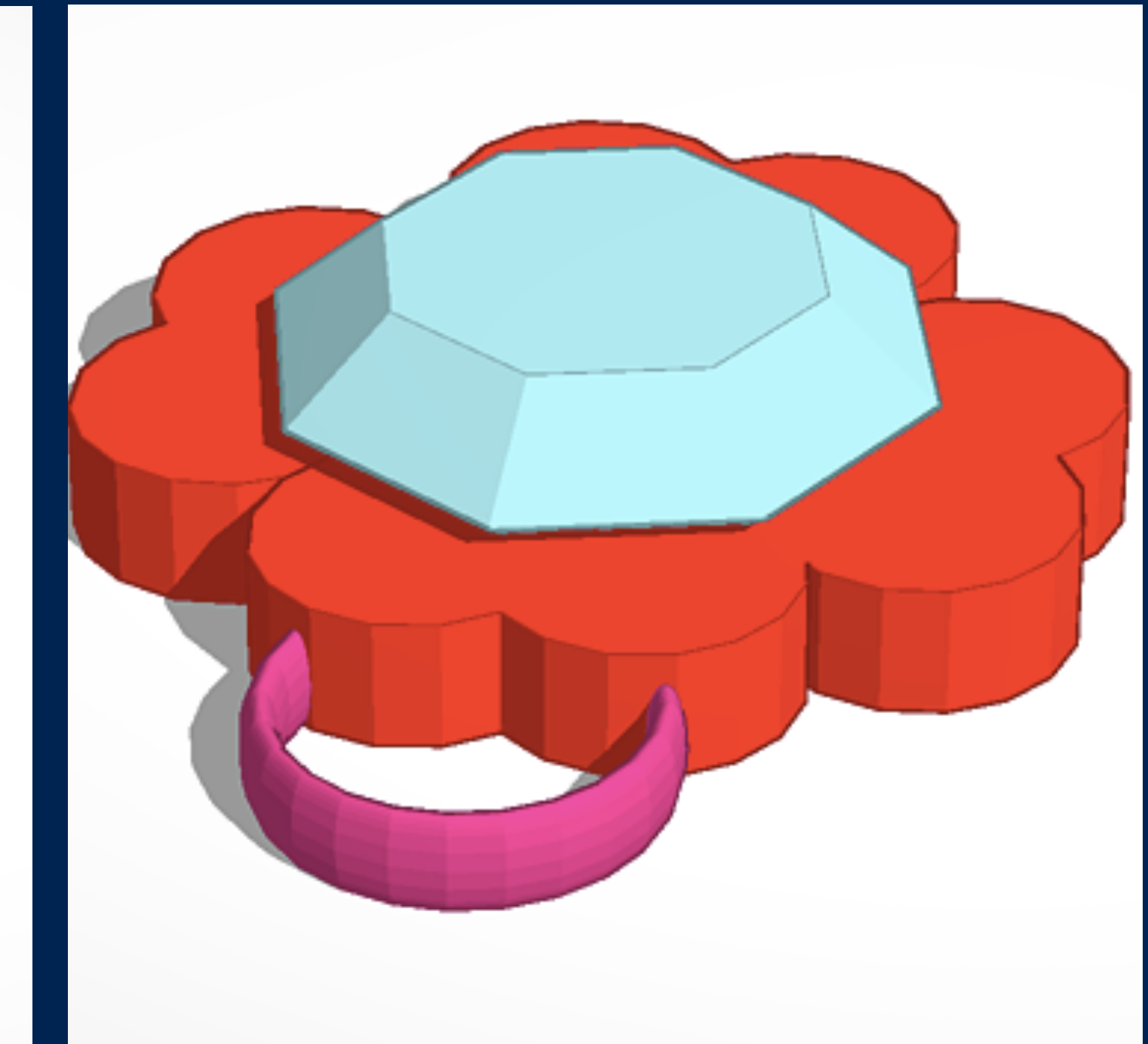
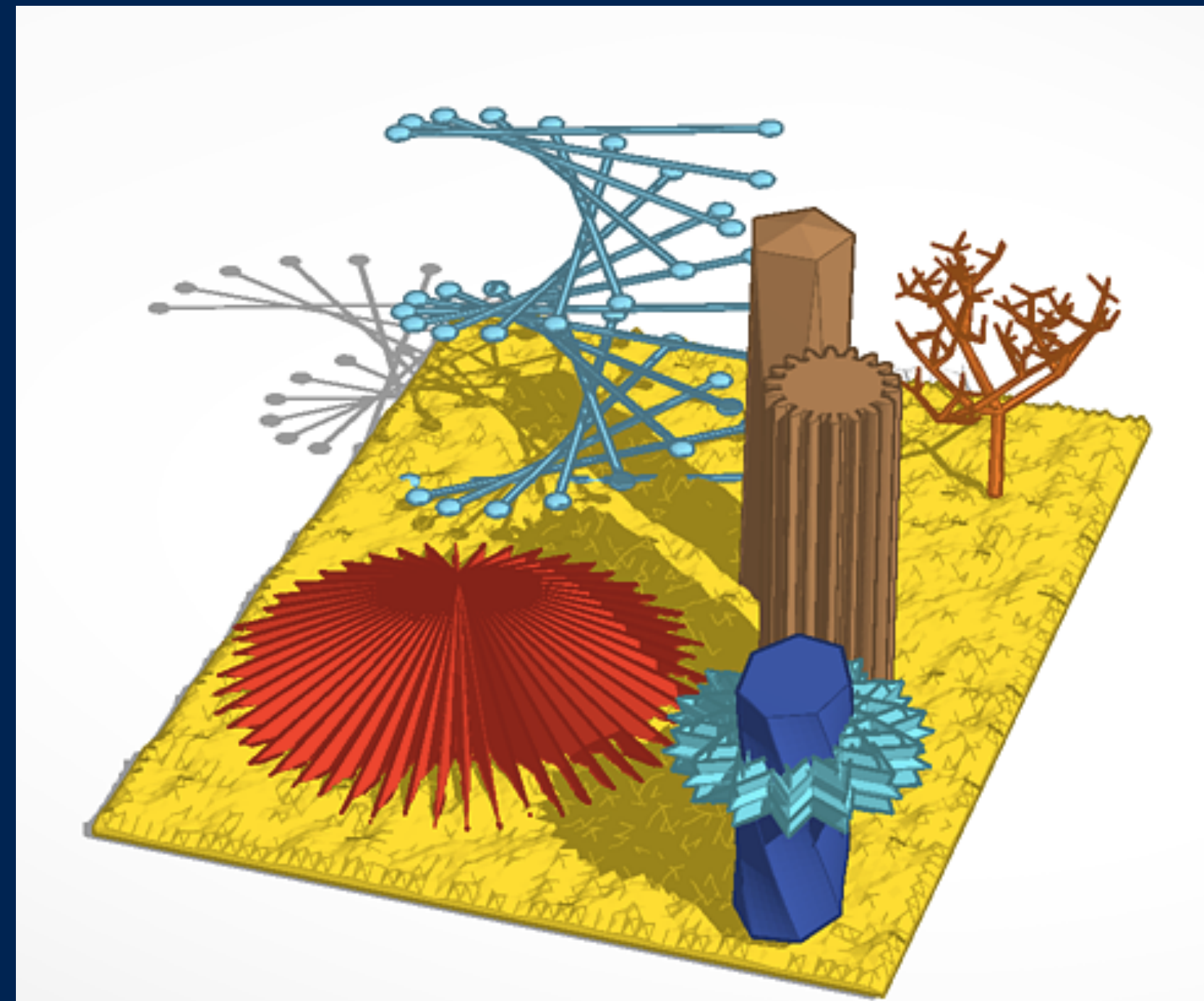
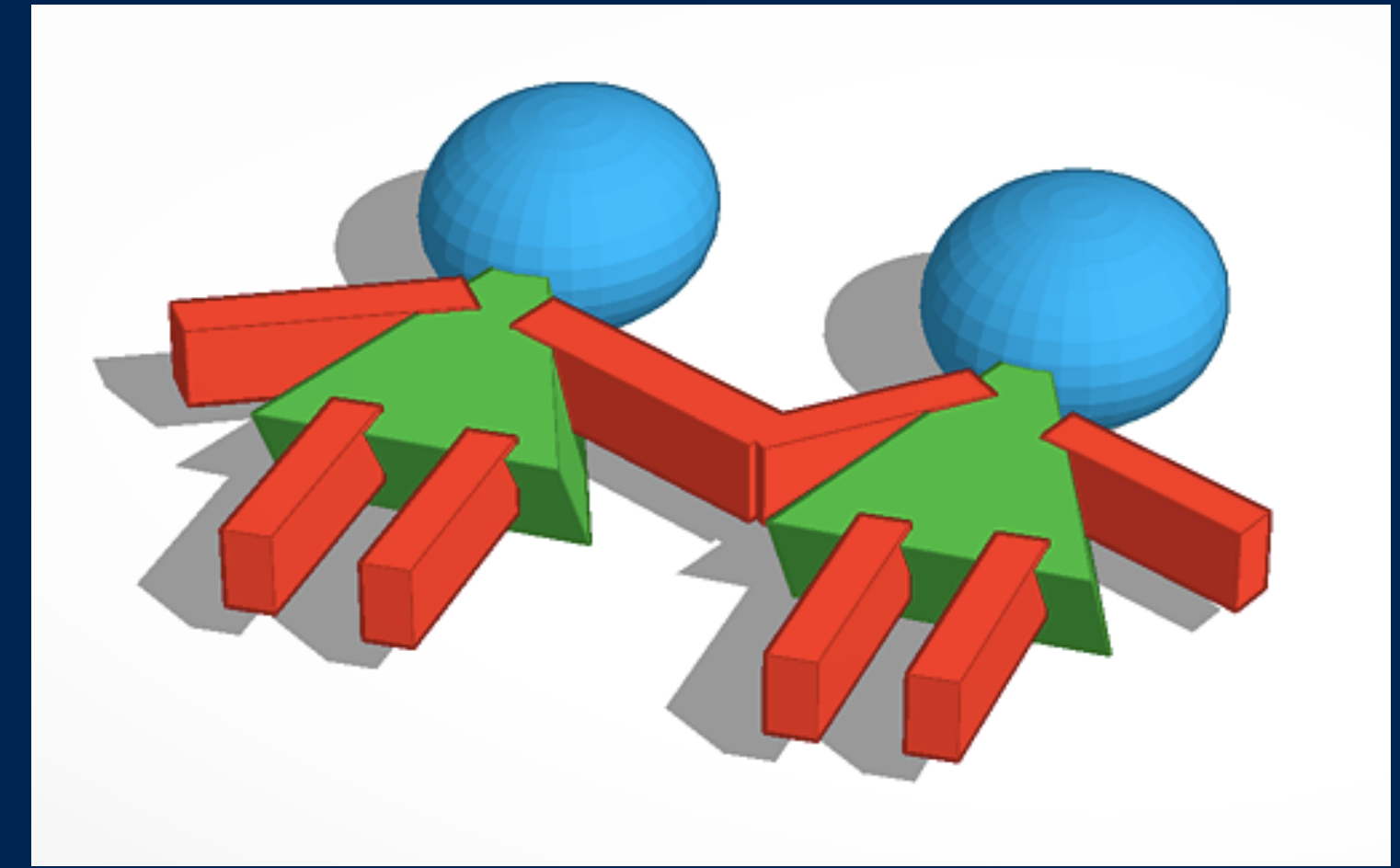
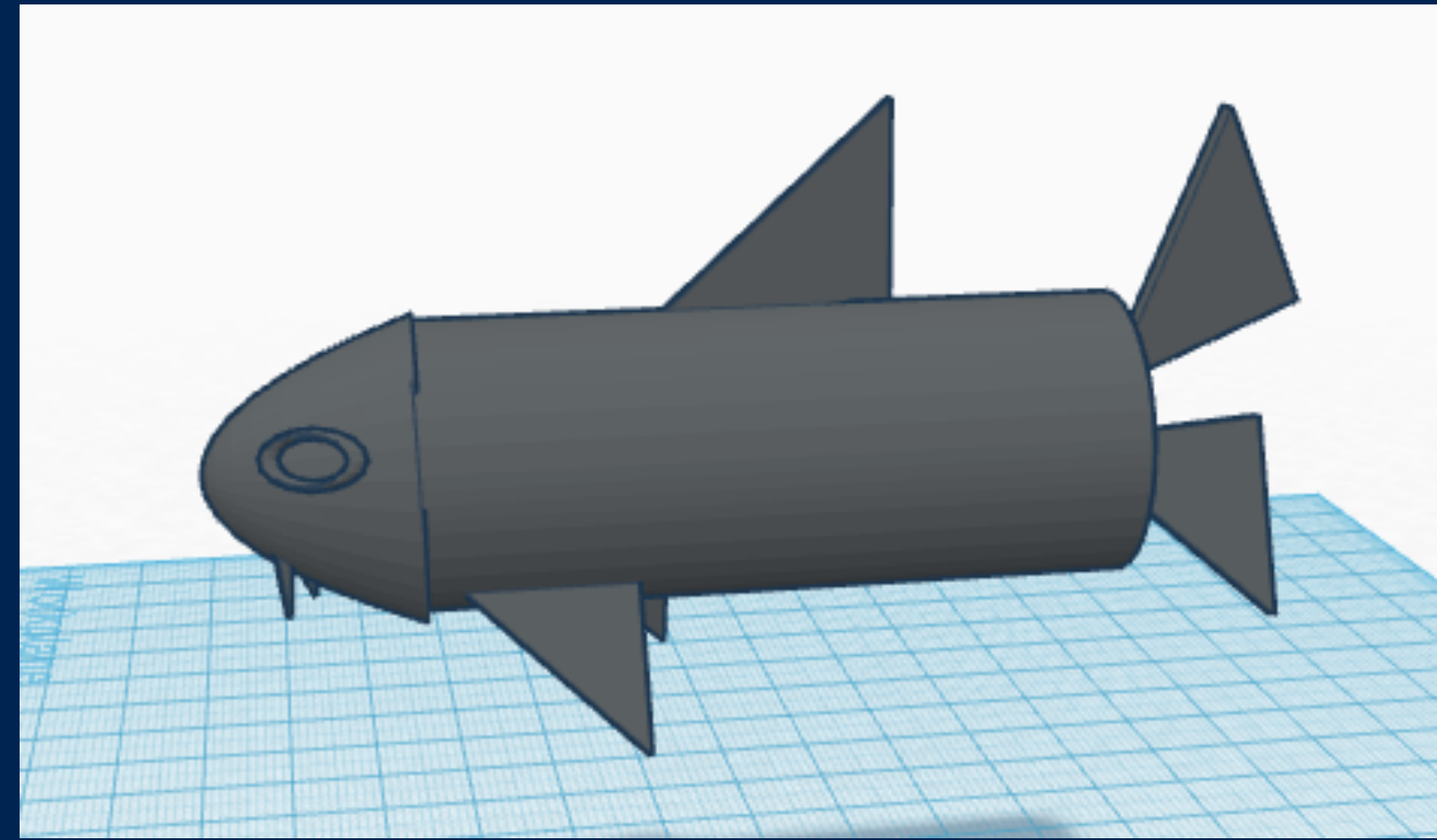
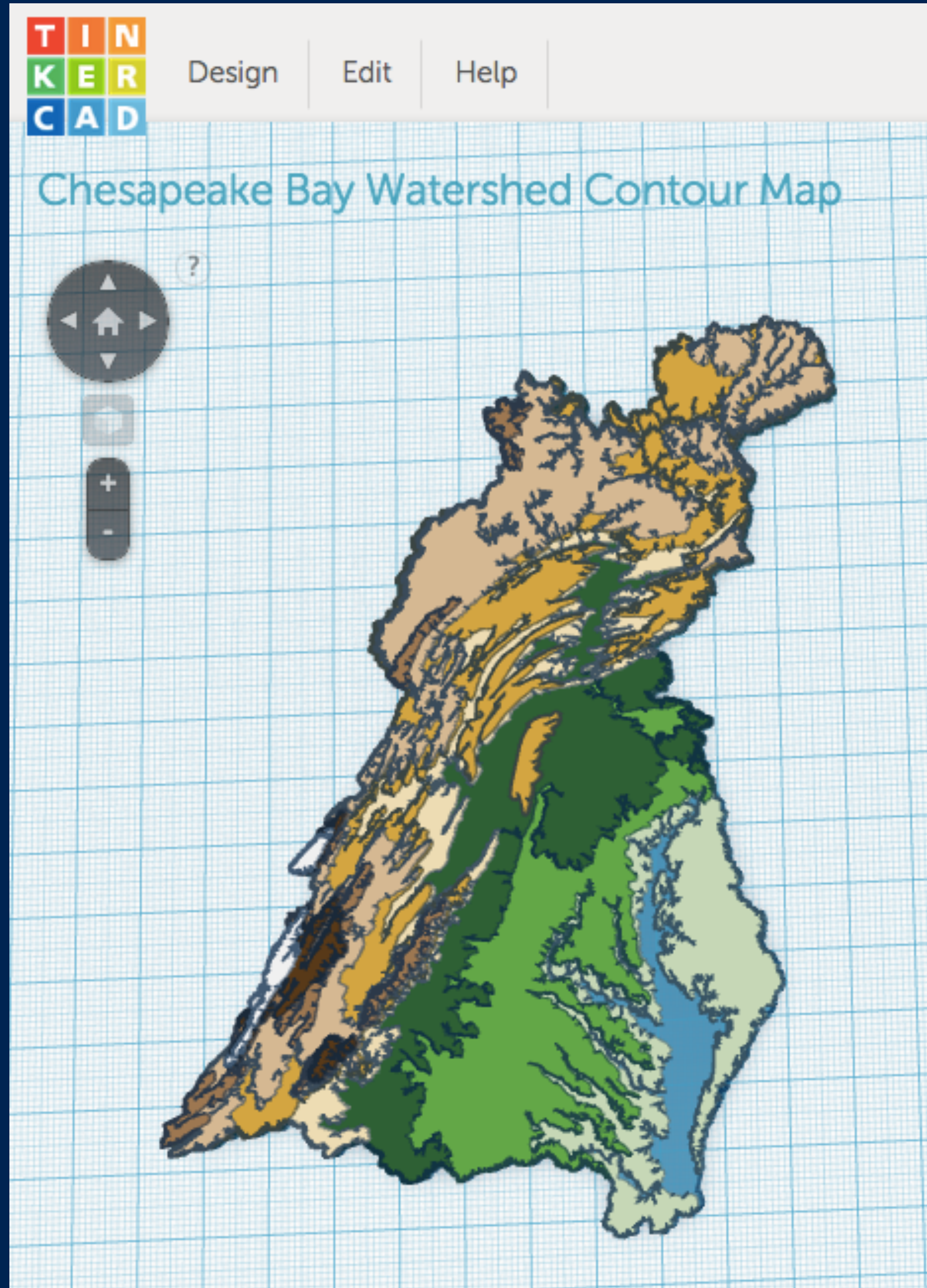
[Tours](#) [Downloads](#) [Info](#)

Smithsonian Tropical Research



TINKERCAD

3D Modeling Software



3D GUMBALL GALLERY

Student models courtesy Wendy Ahart



MORPHI - IOS

morphiapp.com



@DesignMakeTeach - DesignMakeTeach.com

123D CATCH

123dapp.com/catch

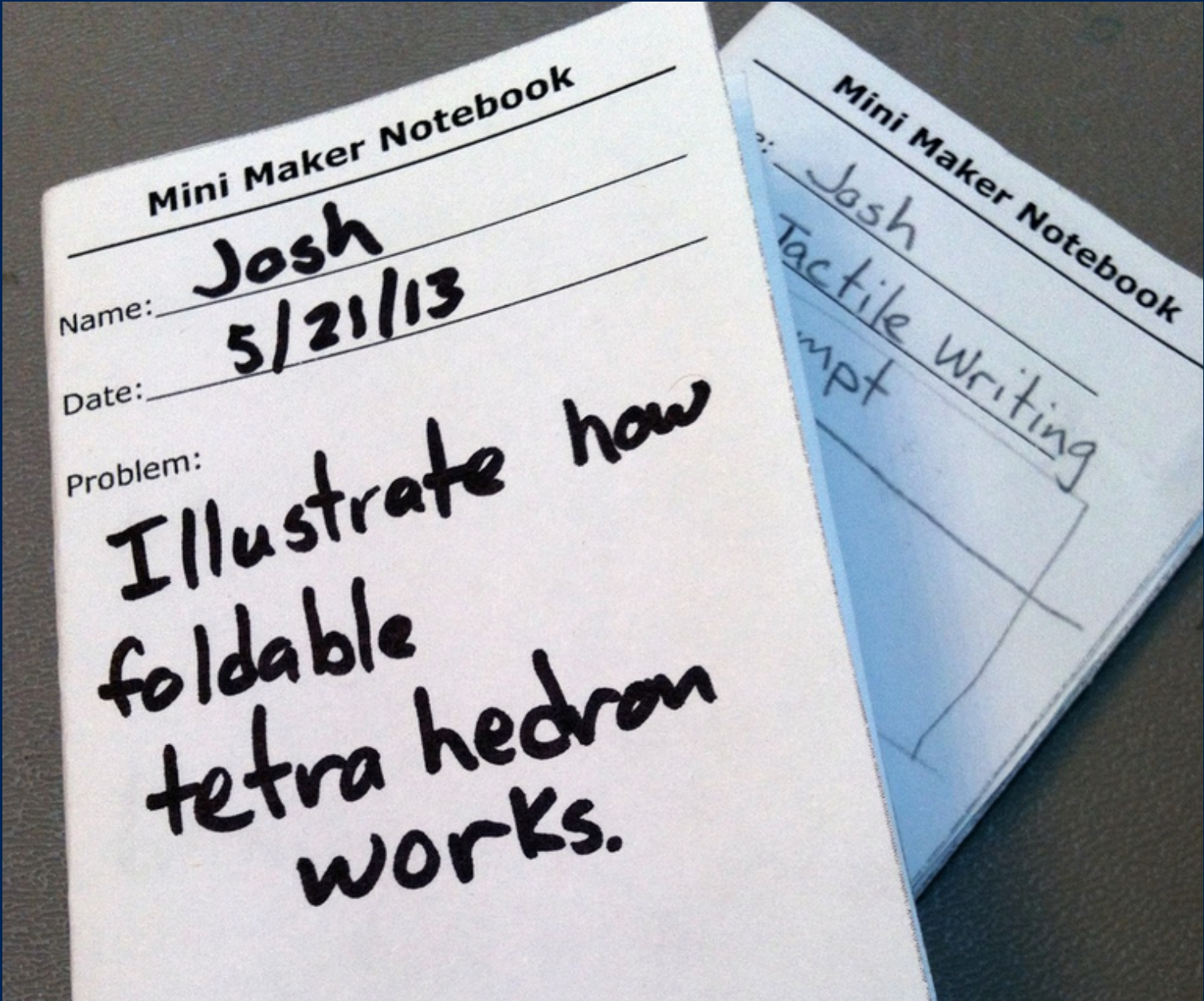
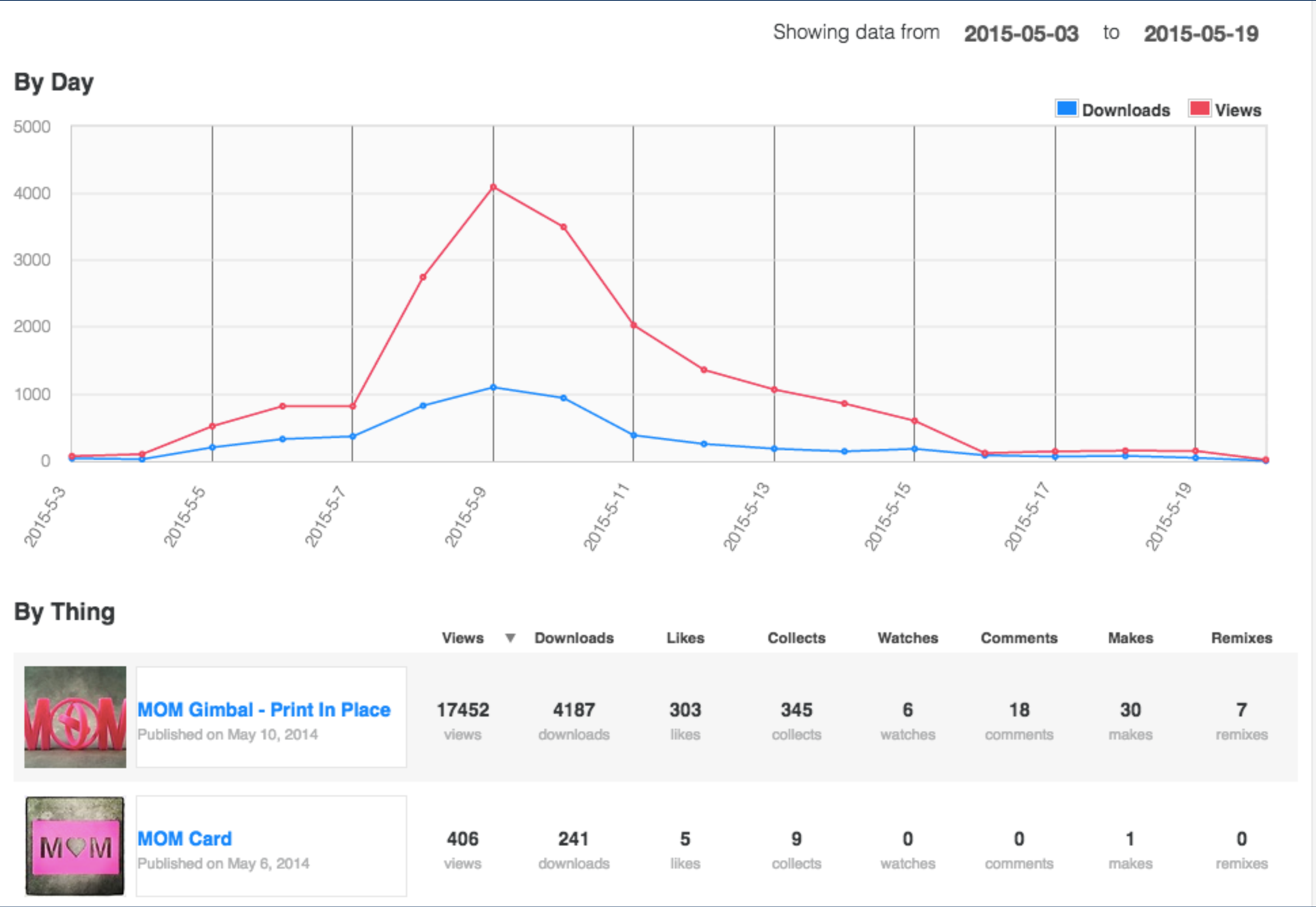
123D Catch is a free app that lets you create 3D scans of virtually any object.



@DesignMakeTeach - DesignMakeTeach.com

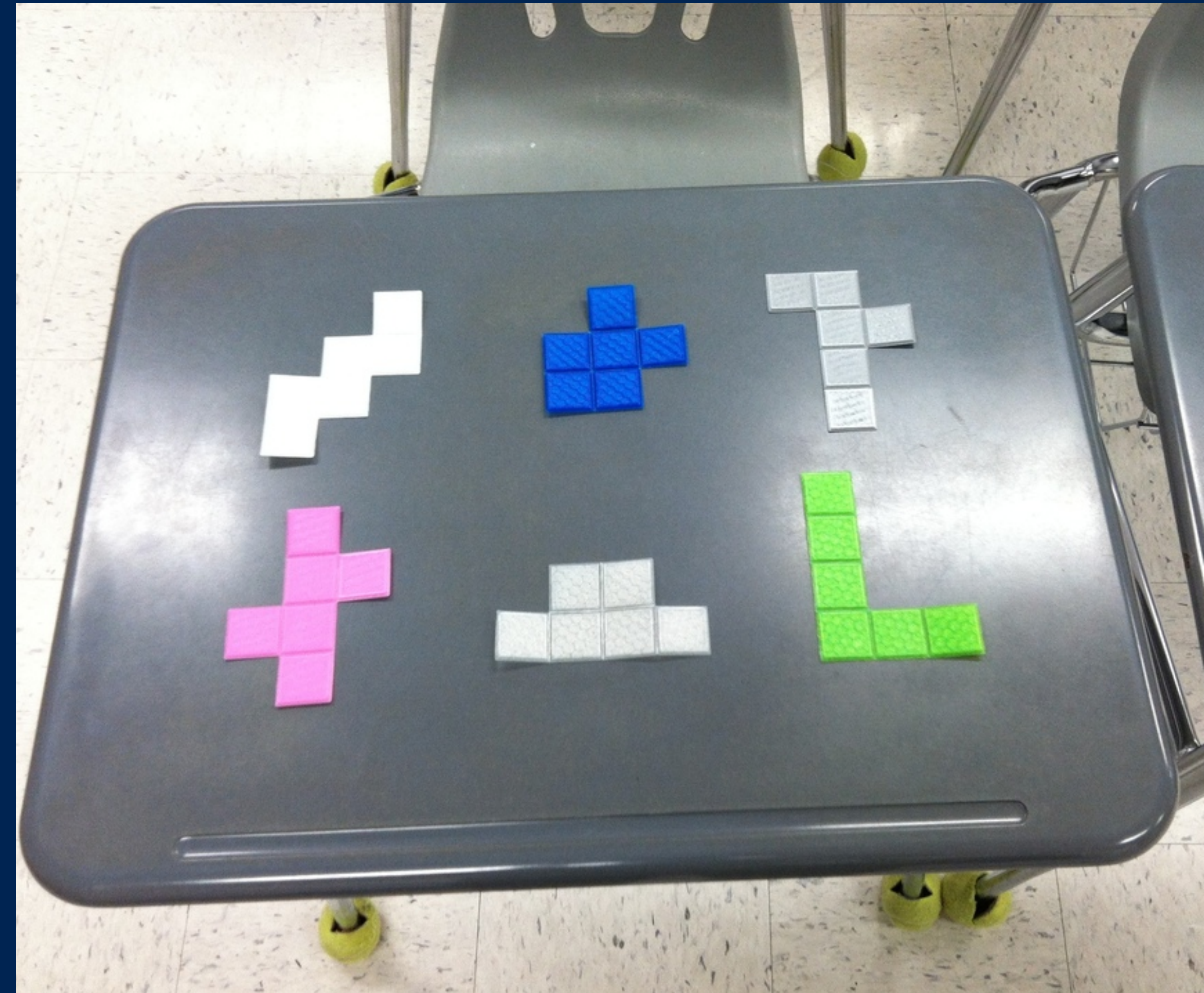
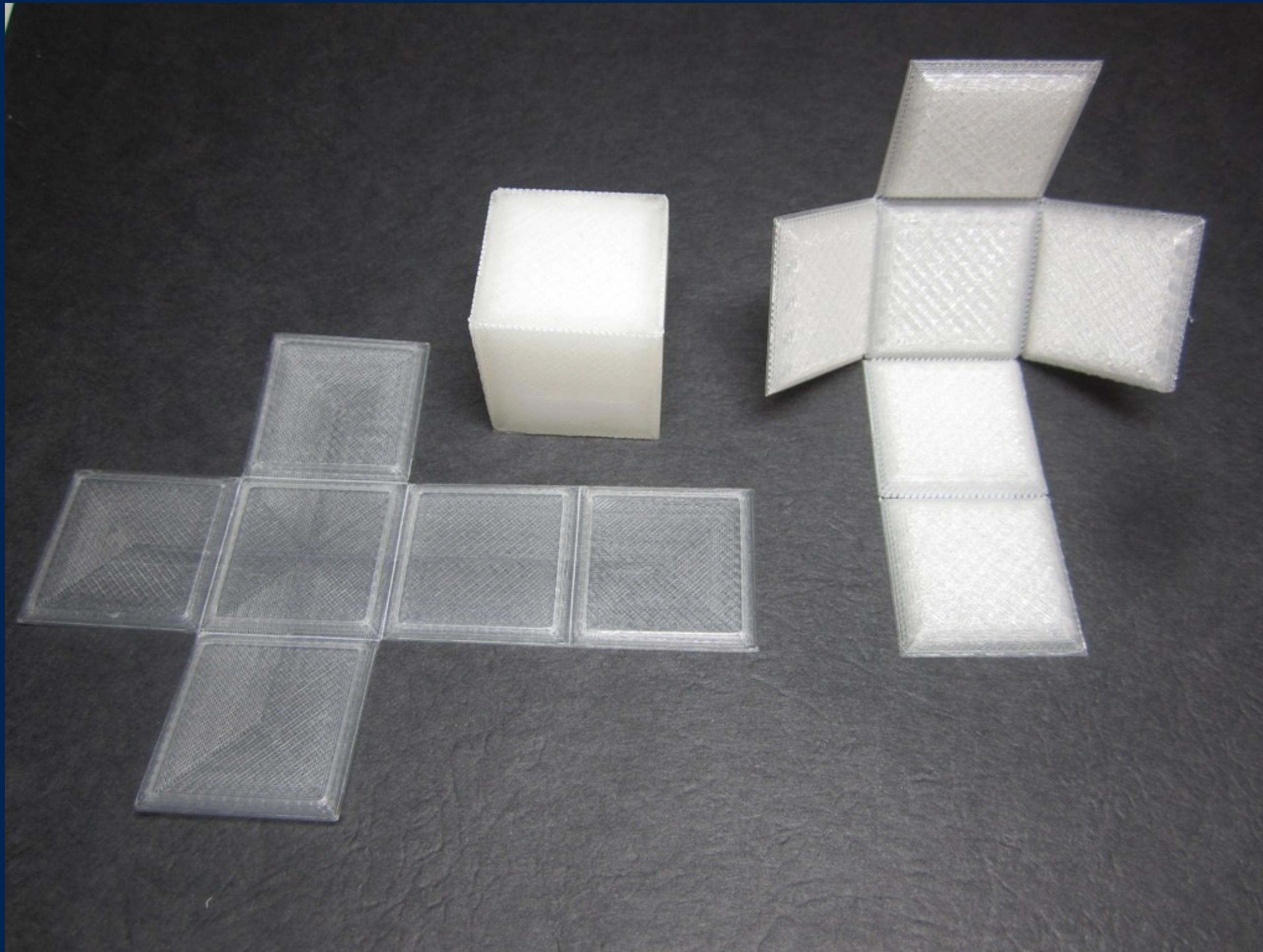
SHARING

<http://www.thingiverse.com/thing:93186>



NETS OF A CUBE

<http://www.thingiverse.com/thing:75093>



HISTORICAL MARKER TEMPLATE

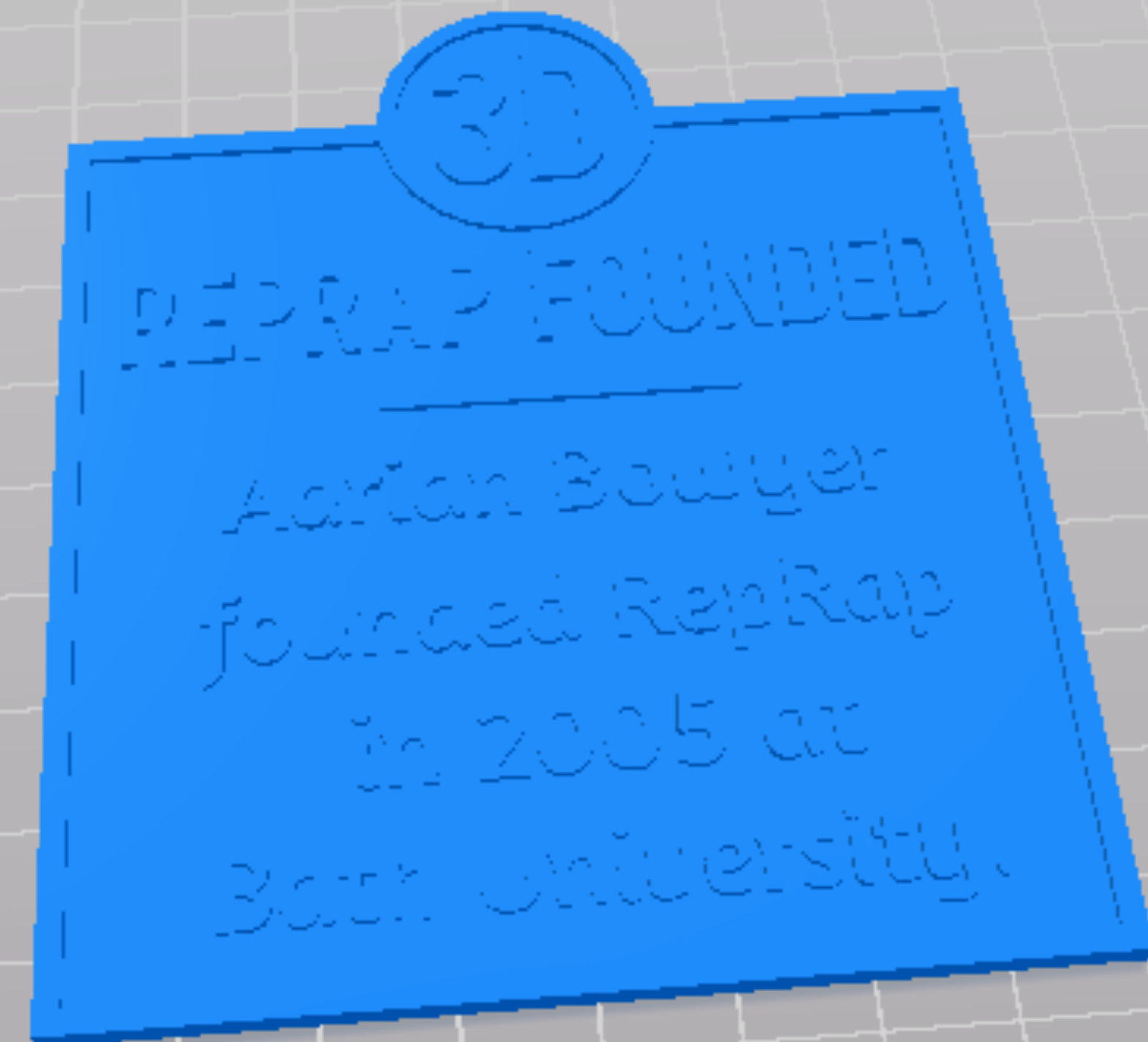
<http://www.thingiverse.com/thing:81412>



Historical Marker Template and History of 3D Printing

by DesignMakeTeach, published Apr 30, 2013

Exit



TACTILE WRITING PROMPT

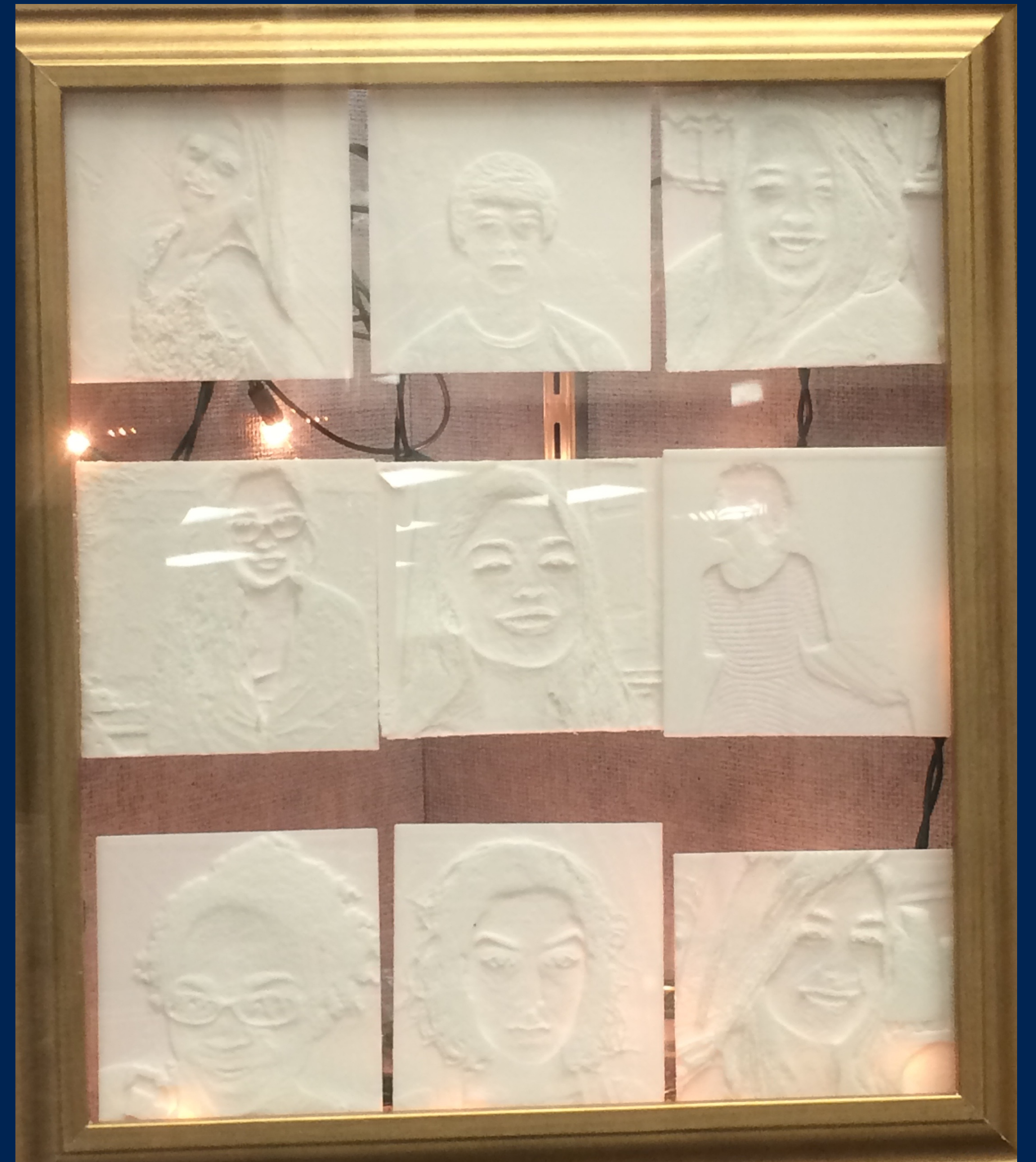
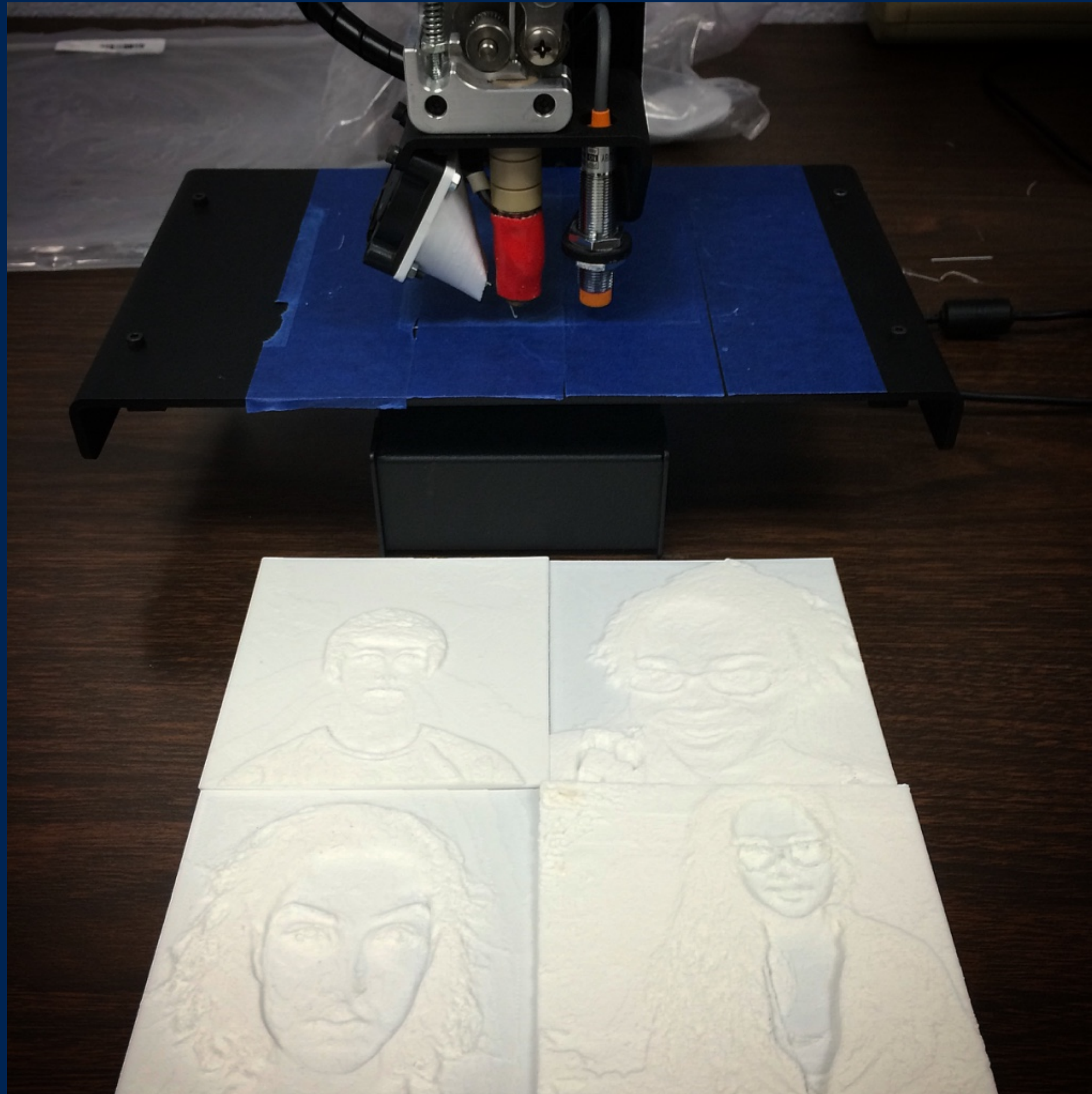
<http://www.thingiverse.com/thing:90193>





ART

3dp.rock/lithophane



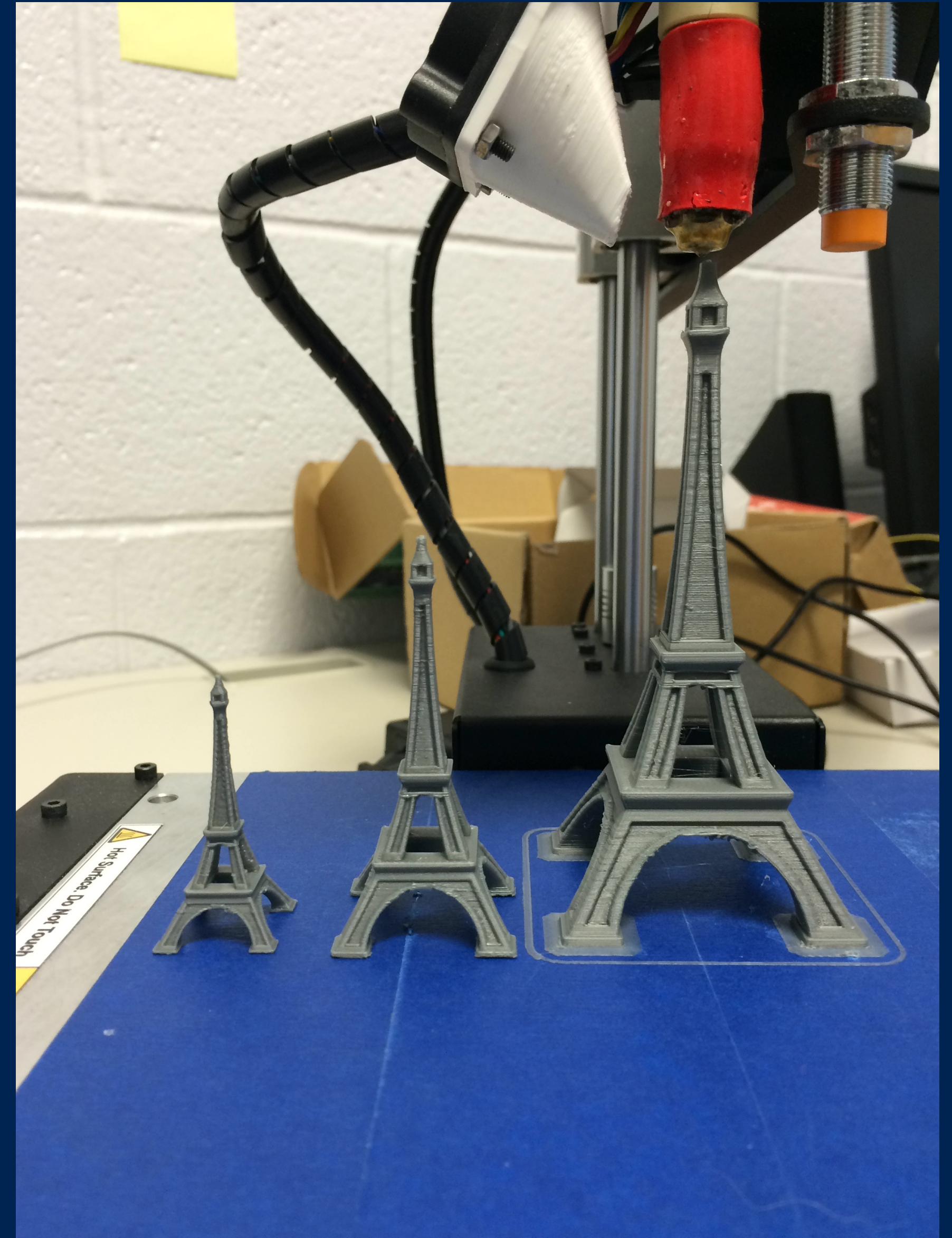
@DesignMakeTeach - DesignMakeTeach.com

WORLD LANGUAGES



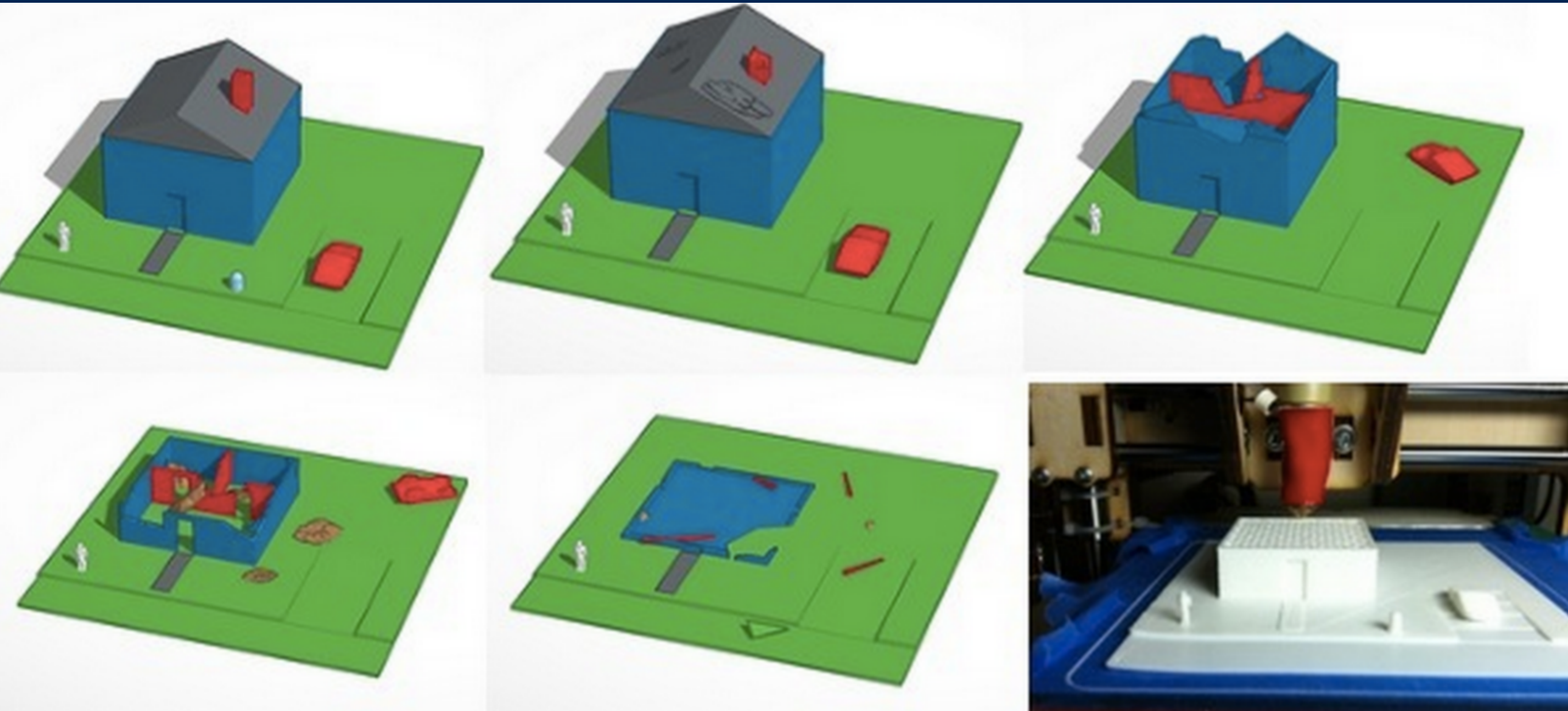
Famous Paris Buildings by LeFabShop

<http://www.thingiverse.com/thing:311002>



FUJITA SCALE MODELING

thingiverse.com/thing:298534



SERVICE LEARNING

Cyborg Beast by JorgeZuniga



<http://www.thingiverse.com/thing:261462>

@DesignMakeTeach - DesignMakeTeach.com

3D PRINTING INFILL PATTERNS

High School Research Student

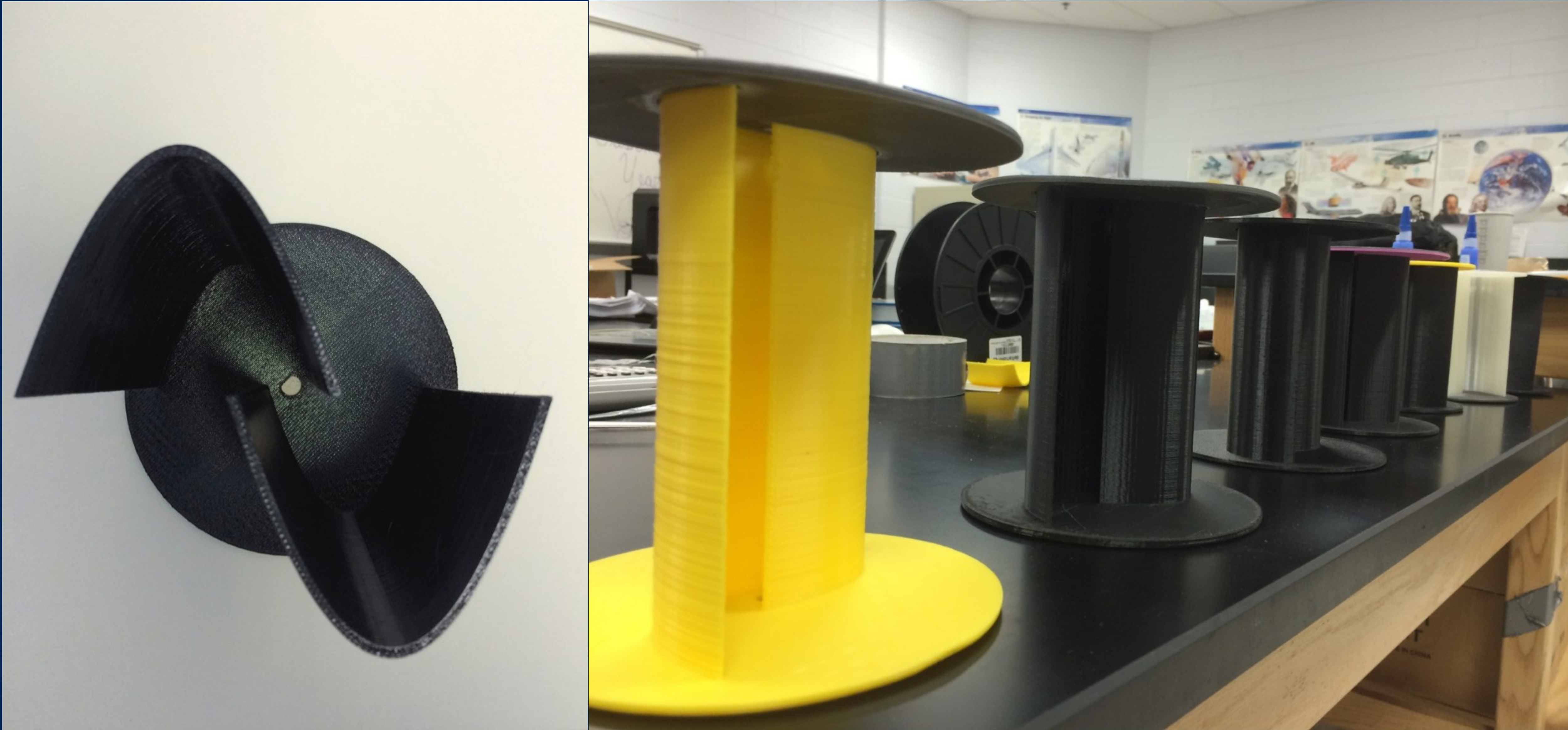


Top to bottom, left to right: Honeycomb, Concentric, Line, Rectilinear, Hilbert Curve, Archimedean Chords, Octogram Spiral

- 3D printers have been emerging in commercial markets for the last 30 years (Canessa, Fonda, & Zennaro, 2013)
- Most common type uses Fused Deposition Modeling (Flaherty, 2009)
- Uses thermoplastics like poly (lactic acid)
- Fatigue testing has been conducted in the past (Moore & Williams, 2012)

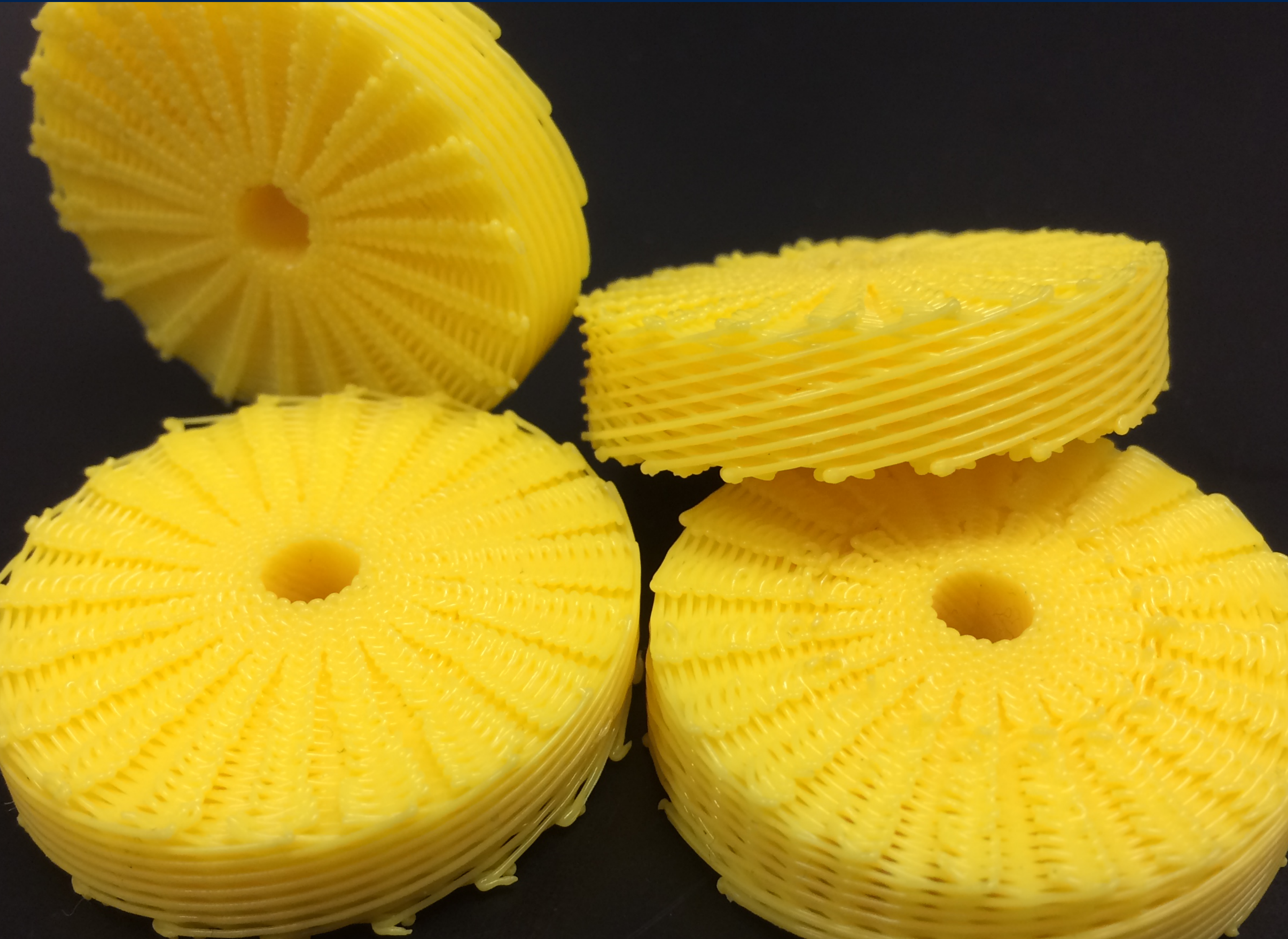
VERTICAL WIND TURBINE

Collaboration with Singapore



SPINAL DISC RESEARCH

High School Research Student



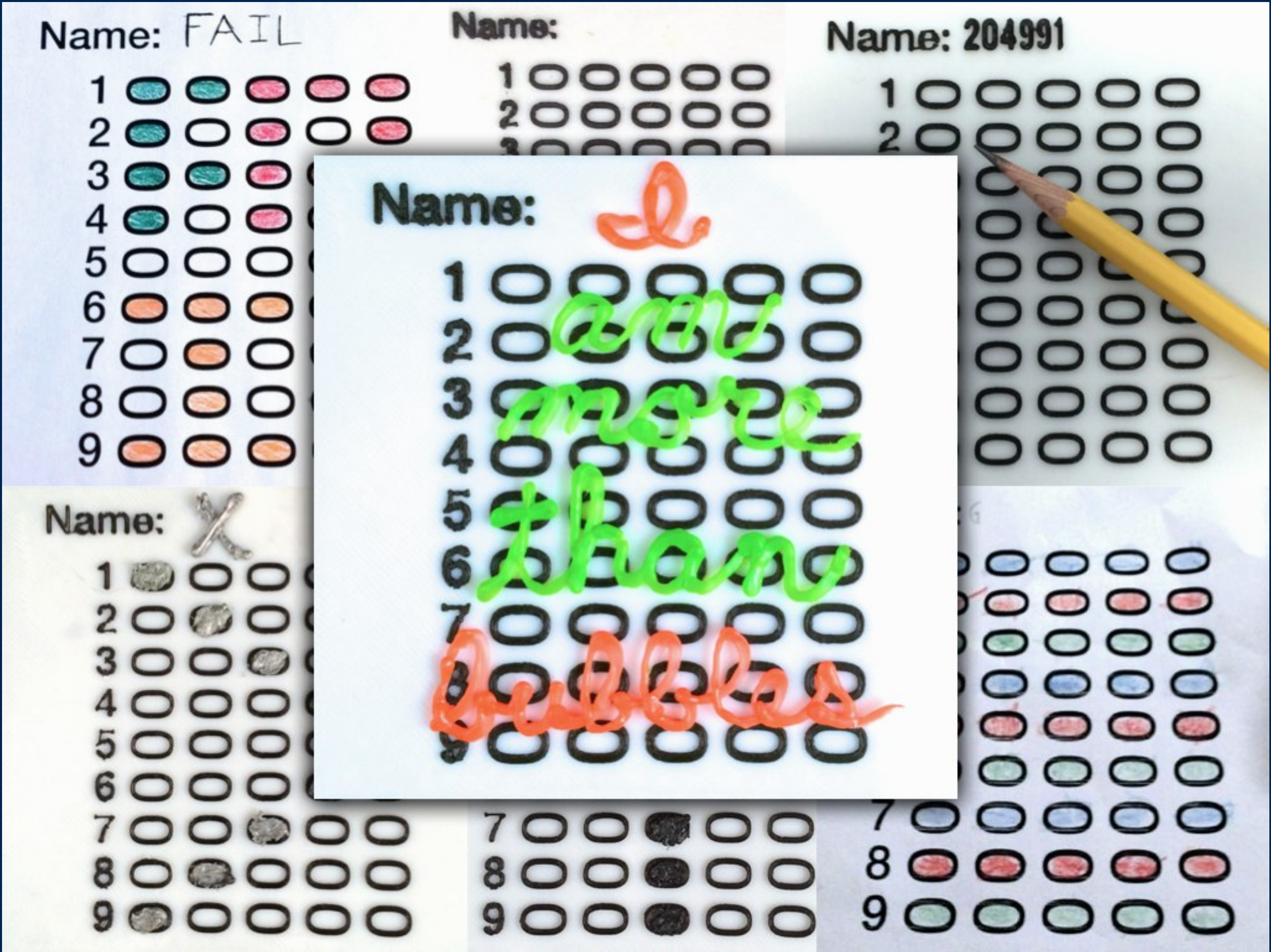
PRINT IT FORWARD - 3D PRINTER FUNDRAISER KIT



@DesignMakeTeach - DesignMakeTeach.com

CLOSURE

Collaborative Art Project: Bubbles on a Page



<http://www.thingiverse.com/thing:241102>

WHAT WILL YOU 3D PRINT?

3D PRINTING IN THE CLASSROOM

Josh Ajima - @DesignMakeTeach
DesignMakeTeach.com

A MAKER EDUCATION MODEL

