

2D Art on a 3D printer

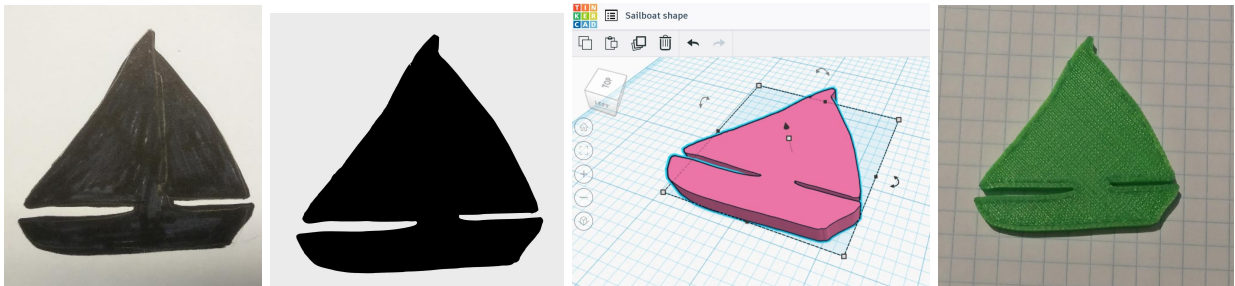
Tools, materials, technologies used:	Experience level required:
online svg converter picsvg.com	beginner
3D modeling software like Tinkercad	beginner
2D design software like Illustrator, Inkscape, Canva, or other online programs (optional)	intermediate

Grade Level (of this example): 3-12

Content Standards: All core areas - See below for possible content exploration

Students will use or design a 2D image to make a 3D printed relief item. The image should be personally and/or academically meaningful.

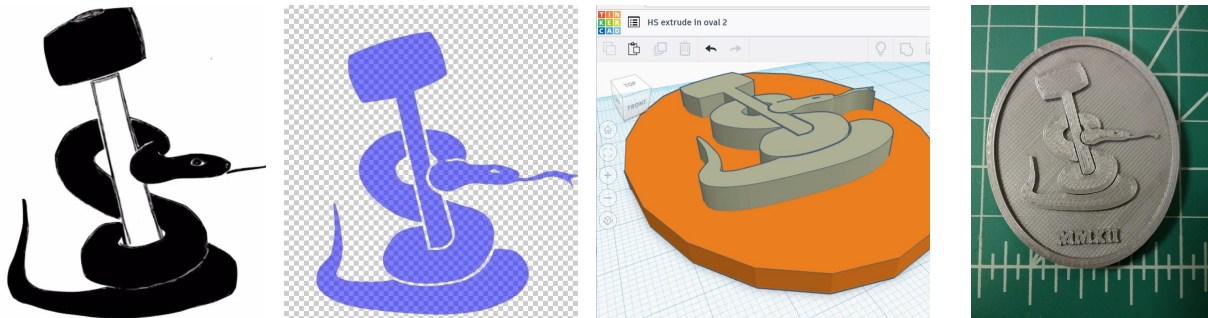
At its simplest, this project is an ideal introduction to the 3D printer. It requires no actual design as long as students have a high-contrast picture at hand that can be easily converted to a vector file with picsvg.com. Students then simply load their .svg into Tinkercad and can use sizing and shape tools to create a printable object.



Left to right: (1) hand drawing (2) drawing converted to SVG using picsvg.com, (3) SVG uploaded and modified in Tinkercad, (4) after 3D printing.

For the next level of learning with this project, see the possible content explorations below. These will all demand thoughtful design, research/discussion about your target content, and the use of 2D modeling software like Illustrator, Inkscape, Canva or other online tools.

Alternative method for more complicated drawings - hand tracing to create SVG:



Left to right: (1) hand drawing (2) drawing traced over by hand in 2D software and exported to SVG, (3) SVG uploaded and modified in Tinkercad, (4) after 3D printing

Possible Content Explorations

- **ELA or Social Studies**

- choose or create symbol that represent a character or important theme
- design a logo for a social group in history, modern society, or a work of literature
 - a meeting or a service project for a relevant social group might be an ideal way to present work - what about communicating with Native American advocacy groups to rework sports teams names and logos that misuse Native imagery?
- community collaboration - offer logo design and screen printing services for a group that has community ties to a student or to the school. Can tie in with exploratory chemistry project (below)
 - sports team logo design
 - sale/display of stamps and prints at a community or school event, with research-based student artists' statements on display

- **STEM: High School Biology**

- 3D print animal feet to use as prints* / create a "footprint roller"
- replication/mutation - give all students one starting shape, have them each change one line segment in a design using 2D modeling software