

Rubber Stamps

with 3D Printed Molds

Project Introduction

Rubber Stamps with 3D Printed Molds

Design and fabricate custom molds for stamps, and create the stamps from reusable rubber.

Use Tinkercad to create a **mold** that can **contain the melted rubber**. Then, design or import **unique shapes** to emboss or deboss into the mold surface.



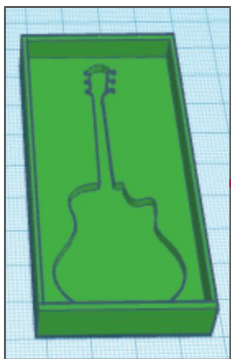
Embossed and debossed example of the same design

Project Introduction

Example Project

In Fifth Grade Social Studies, students worked in groups to create stamp collages featuring symbols from major social movements in American history studied throughout the year.

This group depicted the 1960s Civil Rights movement.



Groups created stamp collages demonstrating understanding

Models created in Tinkercad were 3D printed and filled with reusable rubber

Possible project applications

Make your own
reusable symbols
(math, English,
music, science...)

Cultural
celebrations
and holidays

Storytelling

???

Collaborative
collages in any
subject

Depict scenes,
outfits, or
themes from
literature

SEL, self
expression, or
community
building

Tools and Materials

- 3D Printer and modeling software
- Reusable rubber (like ComposiMold)
- Microwave and microwave safe dish
- Glue or double-sided tape
- Washable ink
- Optional: **wood blocks** for stamp bases. *The back of the molds also work well as a sturdy base.*



Rubber Stamp Steps

1

Design

Use Tinkercad to design a mold that can contain the melted rubber.

Then, design or import unique shapes to emboss or deboss into the mold surface.

2

Print + Pour

Follow your Makerspace workflow to print the designs.

Safely melt the reusable rubber, pour into the mold, and let set.

3

Make + Mark

Unmold the rubber stamp, and attach to a handle for use.

Put your custom stamp to work and make a mark!

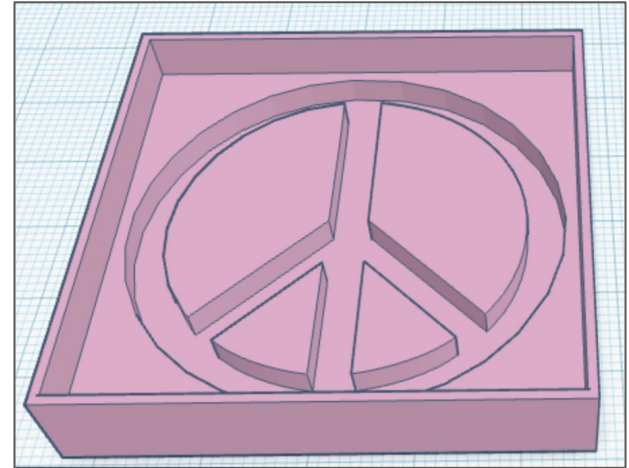
Step 1: Design

Use Tinkercad (or a similar 3D modeling program) to create a container with short walls, and add a design to the inside of the mold.

The rubber base of the stamp allows multiple pieces (like individual shapes or text) to stay together when unmolded.

Consider...

- What your image or text communicates to the audience
- Use of positive and negative space
- The size of your final product

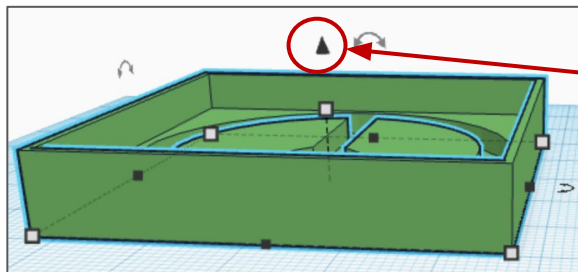
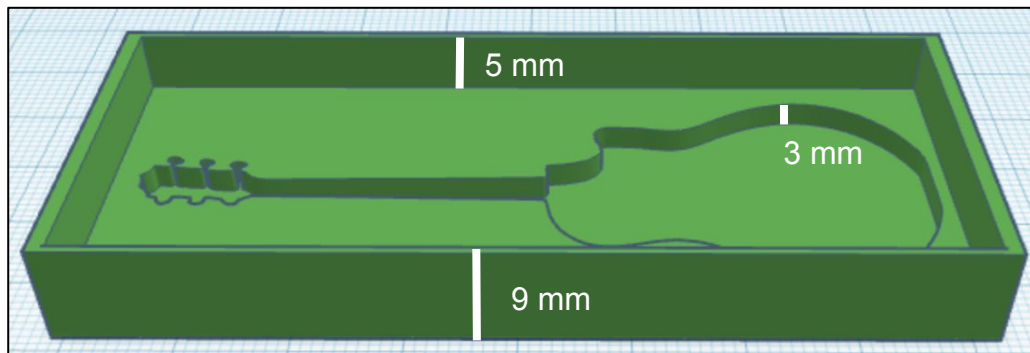


Step 1: Design

Suggested depth measurements

We suggest creating molds that are at least

- **9 mm deep** overall
- with designs **3 mm deep**
- with at least **4 mm of wall height** for the rubber base

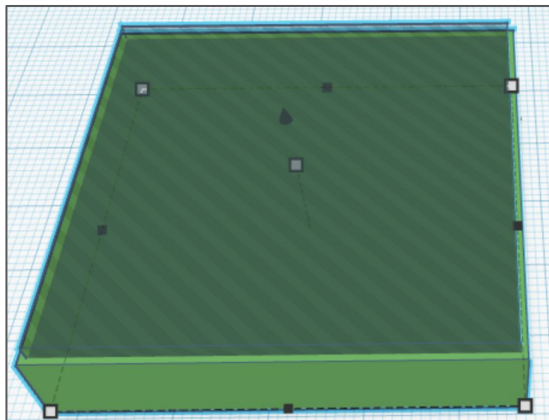


This conical handle controls motion along the Z-axis

Step 1: Design

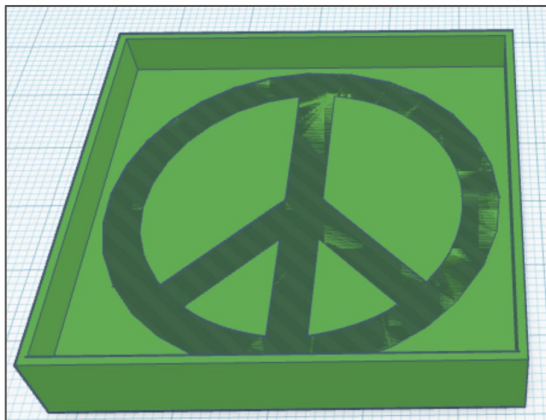
Overview

Create a mold with walls



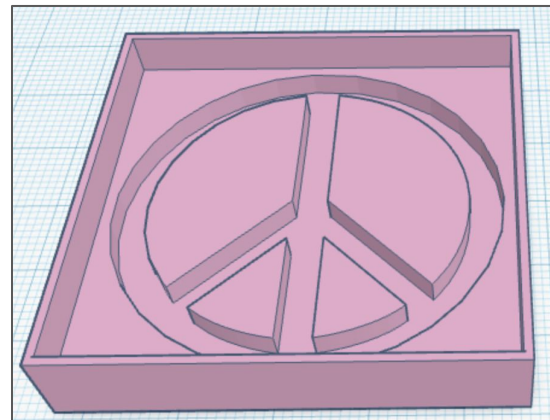
Create two boxes, one slightly larger than the other. Turn the smaller box into a hole. Align and merge.

Add a design



Import shapes, or create a design using shapes native to Tinkercad. Turn the shape into a hole, and align with the merged boxes.

Merge shapes



Merge all shapes together to create the stamp mold

Note: this is just one of many ways to create this shape!

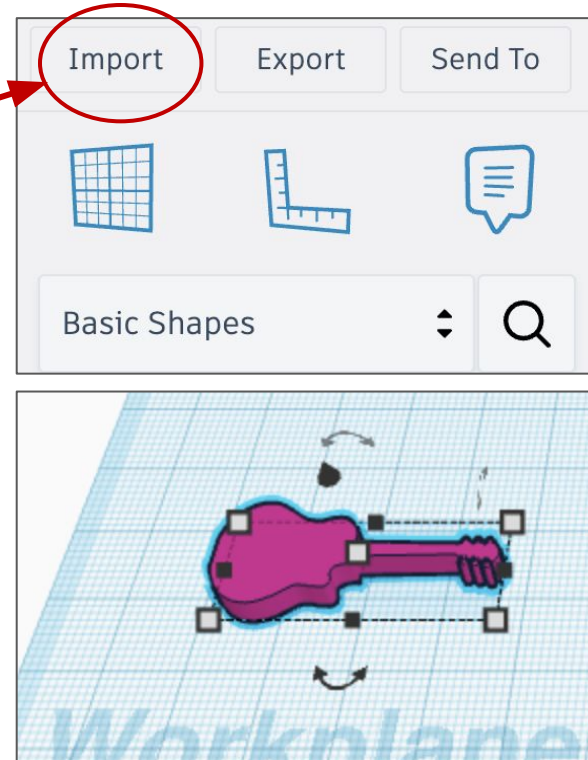
Step 1: Design

Import custom shapes into Tinkercad

Users can upload custom shapes into Tinkercad using the “Import” button.

Find usable shapes from online libraries like Thingiverse.com or Myminifactory.com. These should download in .STL (standard tessellation language) format, the standard for 3D objects.

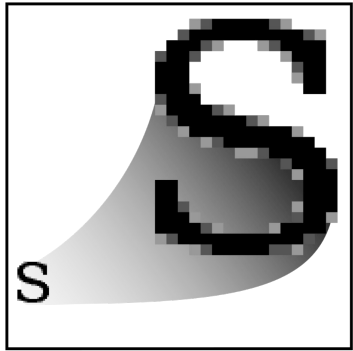
Alternately, **create custom shapes** by converting images to scalable vector graphic (.SVG) format. More on SVGs in the next slides.



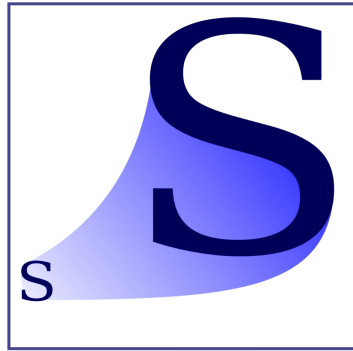
Guitar PNG converted to SVG and imported to Tinkercad

Step 1: Design

Intro to Scalable Vector Graphics (SVG)



Raster
GIF, JPEG, PNG



Vector
SVG

Scalable vector graphics create images using **paths** rather than pixels.

This means that images will never lose resolution (aka pixelate) as you zoom in or manipulate them.

SVGs can be **used as 3D shapes** when uploaded into modeling software.

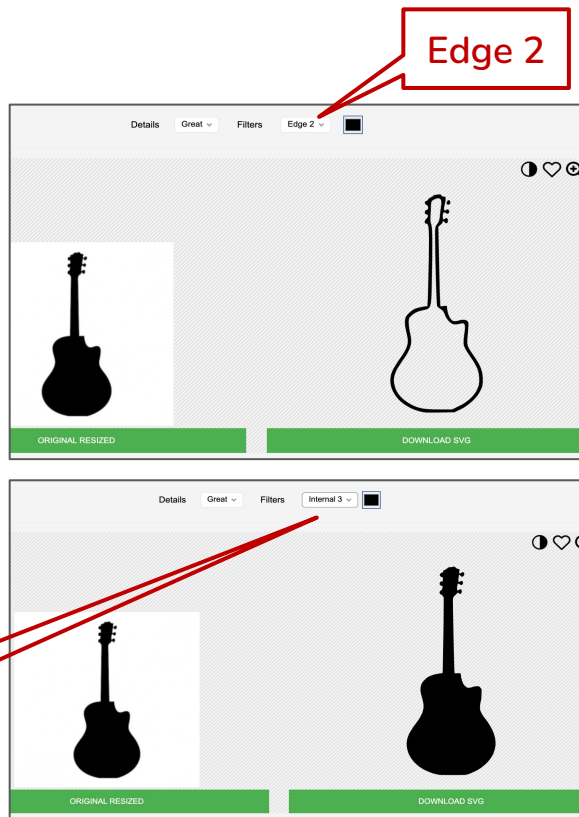
Step 1: Design

Convert images to SVG format

If your shape is not already in SVG (scaleable vector graphic) format, it's easy to convert using a tool like picsvg.com.

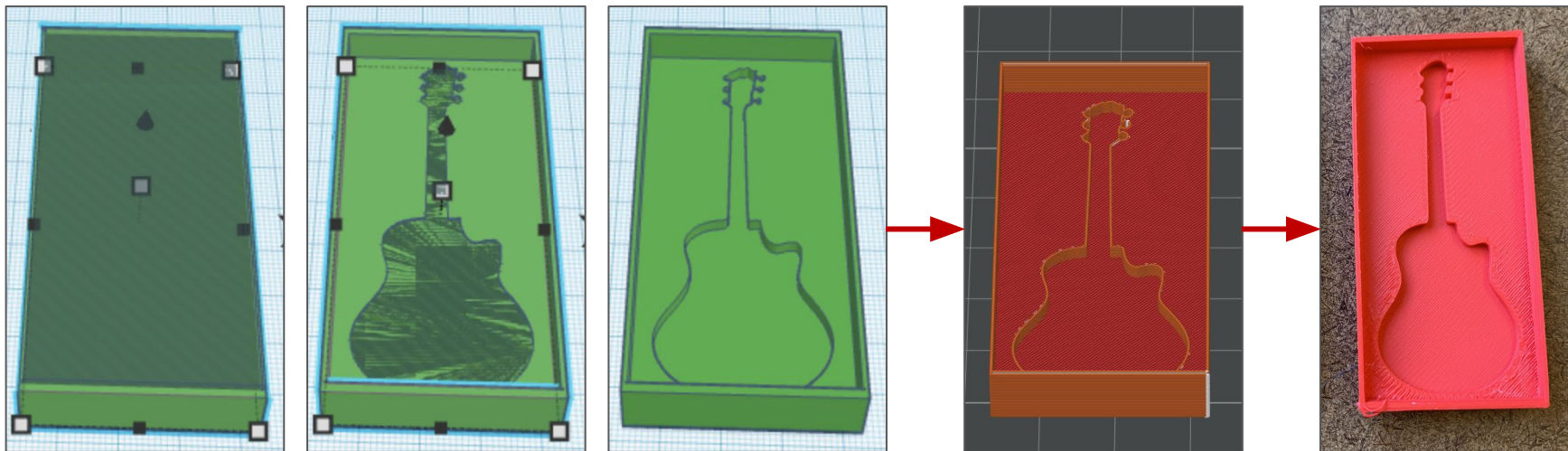
Use the dropdown menu on the site to **try different filters**. See what works best for your needs.

The **“internal” filters** work well to create **solid shapes**.



Step 2: Print + Pour

When your shapes are ready, follow your space's workflow to slice and print the objects.



Individual shapes grouped into single object

Object in slicer

Printed object

Step 2: Print + Pour

Once the molds are printed, melt the reusable rubber in a microwave safe dish according to package instructions.

Pour the melted rubber into the molds.

Agitate with a paperclip to remove any air bubbles.



Step 2: Print + Pour

Allow the rubber to cool and set, then unmold the stamps.

This takes approximately

- 15 minutes in the freezer
- 2 hours at room temperature



Step 3: Make + Mark

Affix the rubber stamps to a sturdy base for easy use.

White craft glue works well on wood blocks

Double-sided tape works well on the back of 3D printed molds

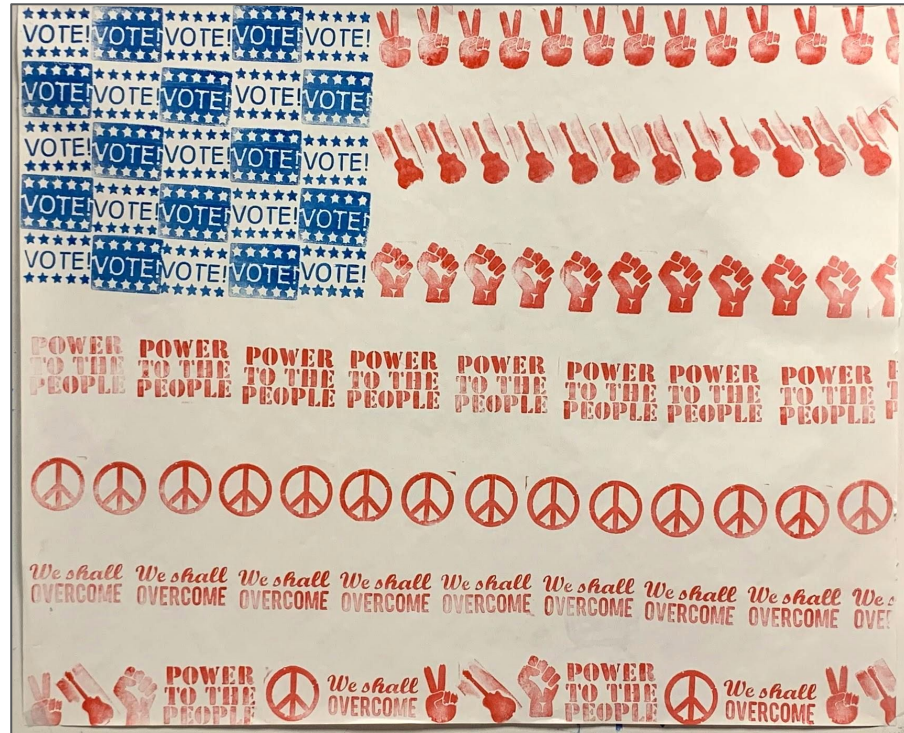
- *With this method, the user can see the design of the stamp as they use it!*



Step 3: Make + Mark

Use the stamps and washable ink pads to create **scenes, collages, or collaborative displays.**

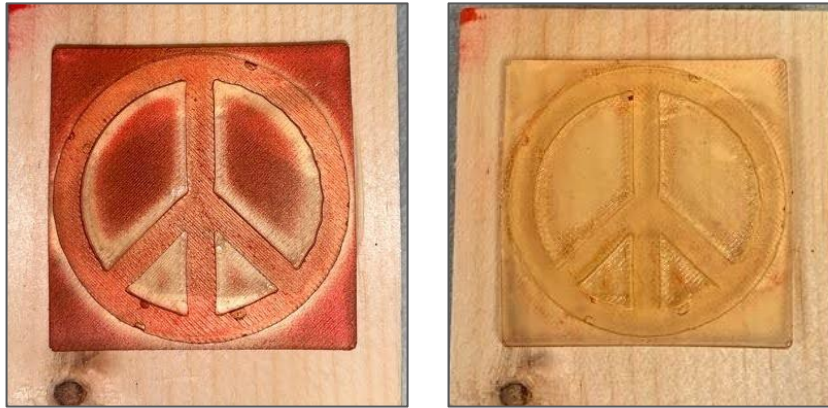
Students should **present or describe their work,** explaining the meaning behind the symbols they chose.



After the project

The rubber stamps should **peel away from the backings** easily, and without any residue.

Clean the rubber with **rubbing alcohol** or **water** to remove any remaining ink.



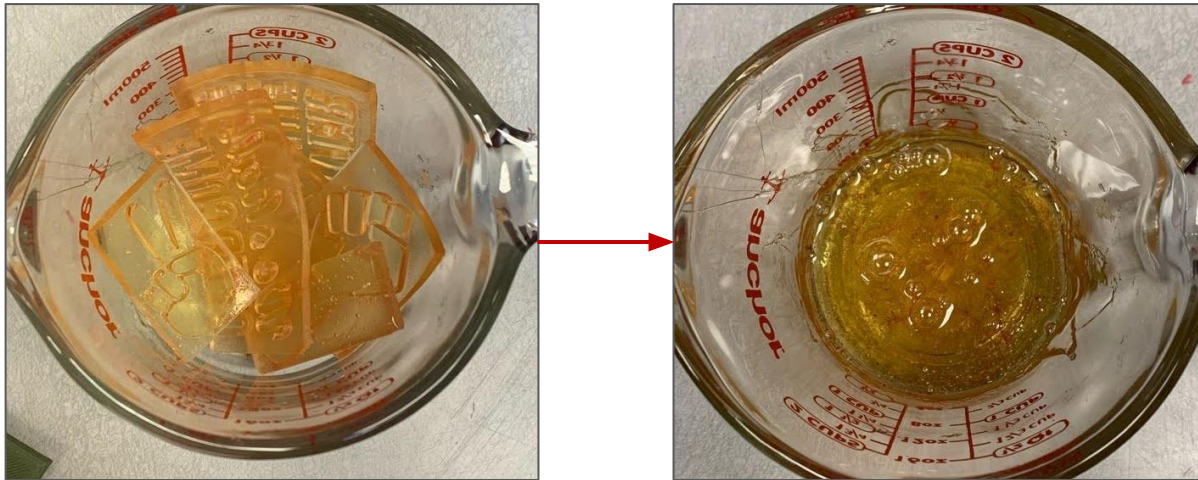
Before and after cleaning with rubbing alcohol



Glue residue sticks to the wood blocks rather than the rubber.

After the project

Remelt the rubber in a microwave safe dish according to package instructions. Pour the material back into the original package, or another sealable container and **store for future use**.



Why we love this project

- ★ Students improve their spatial reasoning and graphic design skills
- ★ The project can be completed individually or in groups, and modified for a wide variety of settings
- ★ It's eco-friendly - the rubber can be reused for numerous iterations of the project
- ★ It creates a unique product that can be used in artistic or practical applications

