

## Stamp pads



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### Public

7-12 y-o

12-15 y-o

adult

### Software

DoodleToSTL

TinkerCAD

## Description

### Learning goals:

- practice creative drawing
- master the basics of TinkerCAD

The goal of this workshop is to provide an introductory demonstration of 3D printing and its use. The workshop is very light on time spent 3D modeling. Participants draw a design on paper and then, using @DoodleToSTL, we transform the drawing into a 3D printed stamp.

## Timing

### 1. Introduction and presentation of 3D printing - 15 mins

Introduction of the world of 3D printing with video (<http://www.dragontape.com/#!/6319966877908992>) and presentation.

### 2. Overview of the activity - 5 mins

Briefly explain the flow of steps for the day's activity.

What will the participants do? : Create a stamp from a drawing on paper

Which software will be used? : DoodleToSTL

### 3. Distribute a piece of paper and a marker to each participant - 2 mins

### 4. Log in each participant to the software TinkerCAD - 5 min

Ask each participant to log into the software TinkerCAD.

Provide usernames and passwords.

This will be useful for the 2nd part of the activity. Ask everyone to turn off their screens or close the laptop lids for now.

### 5. Demonstrate how to make a drawing which will work well - 5 min

**Important** : The drawing must have thick lines (at least 2 mm)

See the software instructions here : DoodleToSTL

### 6. Participants draw their stamps - 10/15 min

Once participants have finished, use your smartphone or tablet to take a photo of each drawing. Tweet (send a message on twitter for) each photo to @DoodleToSTL.

For more information, see the software instructions : DoodleToSTL

## 7. Get the STL files

Ask each participant to re-open their screen and use a browser to navigate to the URL : [twitter.com/DoodleToSTL](https://twitter.com/DoodleToSTL) (<https://twitter.com/DoodleToSTL>). Participants must find the twitter message related to their drawing and download the STL file at the shortened (bit.ly) link provided in the twitter message.

## 8. Open TinkerCAD and import the STL file

- Go to the TinkerCAD browser tab (should be logged in already).
- Click on the button "Import" and select or drag-and-drop the recently-downloaded STL file to import it.
- Create the stamp base with a cylinder or cube. Scale the cylinder or cube to match the width and length of the wooden cube, and to 1 mm in height.
- Scale the imported stamp design to fit on the stamp base you made previously, and again scale it to 1 mm in height. Place the scaled stamp design on top of the stamp base.
- Group the two objects together.

## 9. Saving the STL file

Ask participants to rename their files

- click on the nonsense name in the top menu bar  
Download the STL file :
- Export : Everything in Model, STL

Use a USB key to gather the STL files from participants.

## 10. Import the files in Tinkerine or Cura - 5 min

Open the preferred slicer software

Import the STL file

Adjust the print settings (fill, wall thickness, speed, height, ...)

Save the file (.Gcode) to the SD card

## 11. 3D Printing - 30–45 mins

Insert the SD card in the 3D printer

Select the previously saved file (.Gcode)

Start the print!

## 12. Feedback - 5 min

Ask the participants to provide feedback on the workshop while the models are being printed.

## 13. Sand and glue the 3D prints onto the wood blocks, test stamps - 10 mins

Glue the flat side of the stamp onto a block of wood with superglue.

Use sandpaper to level the raised part of the stamp. Tape a piece of sandpaper onto a table or flat surface. Rub the stamp surface against the sandpaper in a figure eight motion and do your best to keep it parallel to the table.

Test the stamp by inking it and pressing it onto scrap paper. If it is still uneven, continue sanding some more until it works.

Your stamp is ready!

## Equipment

Materials needed :

- # participants x blank draft or scrap paper
- # participants x felt markers (sharpie)
- # participants x small wooden blocks (as a base or handle for the stamp)
- an inkpads (for testing the stamps)
- A tube of superglue
- A sheet of coarse sandpaper (any grit between 120 and 220)

## Participant's guide

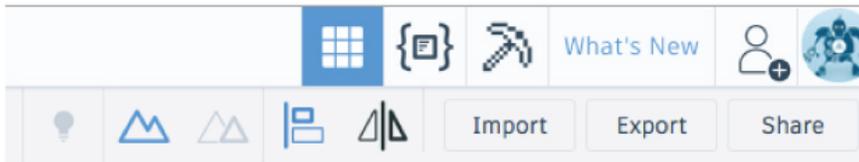
### 1. Import the stamp into TinkerCAD

- Go to the TinkerCAD browser tab (should be logged in already).
- Click on the button "Import" and select or drag-and-drop the recently-downloaded STL file to import it.
- Create the stamp base with a cylinder or cube. Scale the cylinder or cube to match the width and length of the wooden block, and to 1 mm in height.
- Scale the imported stamp design to fit on the stamp base you made previously, and again scale it to 1 mm in height. Place the scaled stamp design on top of the stamp base.
- Group the two objects together.

### 2. Reminder



## REMINDER



#### Functions :

1. Group objects : select the objects and click on   **group (ctrl + G)**
2. Ungroup objects : select a group of objects and click on   **ungroup (ctrl + shift+ G)**
3. Align objects : click on  and select one of the alignment point.
4. Rotate or 'mirror' an object : click on  and select one of the orientation arrow.