# 3D PRINTING GUIDE

MCMATH
LIBR@RY

New to 3D Printing? This guide will help you get started!

Cost of 3D printing = 10 cents/gram

We suggest visiting a safe 3D print file sharing website like **www.thingiverse.com** to download 3D model files created by others and to explore 3D design ideas.

Follow the steps below for locating and printing a 3D File created by others:

1. Go to the website **www.thingiverse.com**

2. Find a 3D print file to download. To increase your chances of a successful print, consider the following when choosing your file:
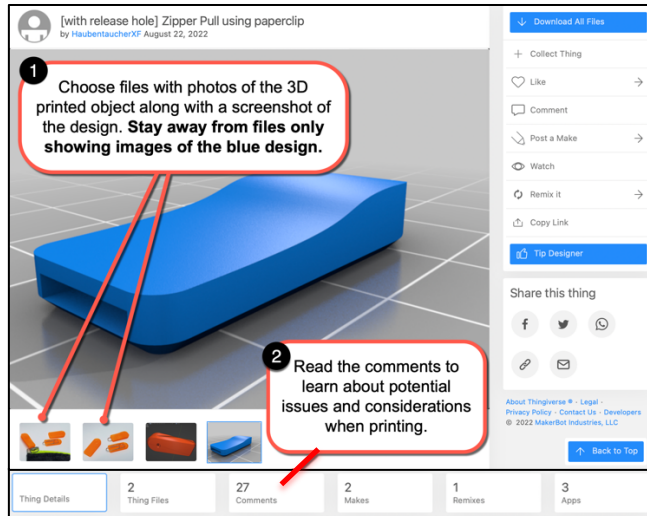
3. Download the file and extract it from its .zip folder - *make sure it is an .stl file*

4. Open the *Tinkerine Suite* application on a PC desktop in the media centre

5. Slice the object using *Tinkerine Suite*

6. Ask staff for an SD card and save the sliced file onto it

7. Fill out the 3D print sign-up sheet (ask library staff)

Tinkerine Suite
v3.0

**Please note, each "thing" you find on Thingiverse is protected with a [Creative Commons license](#). Make sure to respect the creator's license when printing:

Creating 3D Designs in Tinkercad:

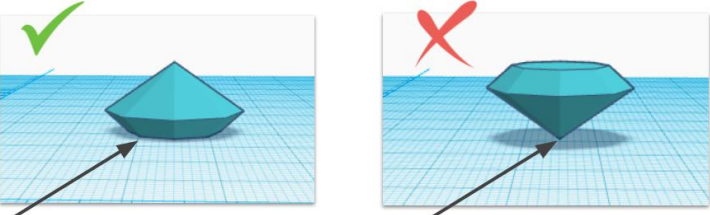### The steps below will guide you in learning to create your own design to 3D print:

1. Using the Google Chrome web browser, go to the website **www.tinkercad.com**

2. You will need to sign up for an account. See LLC staff for help if needed.

3. If you are new to Tinkercad, learn how to use the program in the website's *learning center*.
   Follow the steps below to access and complete Tinkercad's basic tutorials:
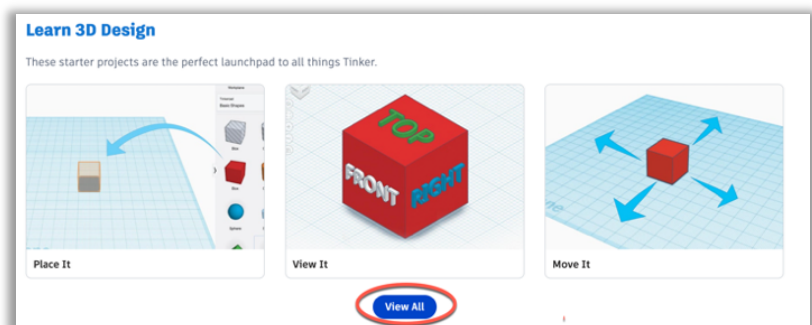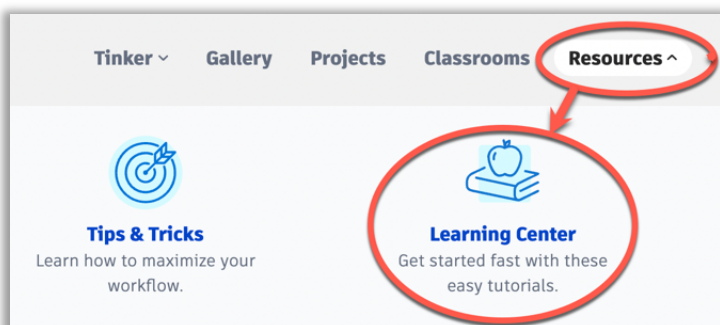
4. When you are comfortable using Tinkercad, start creating your own design by combining shapes and grouping them together. Make sure to consider the following when designing:

DESIGN TIP #1 - Create a design with a flat base:

A flat base will allow the 3D print material to stick to the print bed, increasing the chances of a successful print.
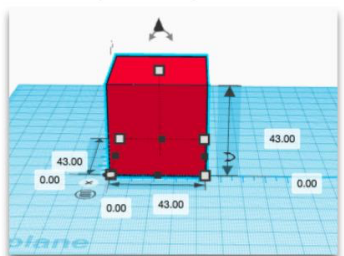
✔

✘

Flat base with enough surface area touching the printing bed = print will stick to the print bed

Base too narrow - it will not stick to the printing bed

DESIGN TIP #2 - Avoid features that are too small:

- Design details smaller than **.05mm** will not be recognized by the printer.

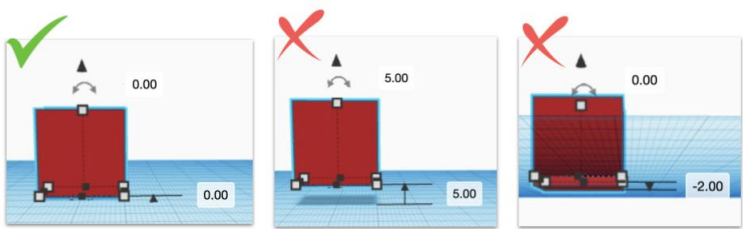- To view the size of your design, click on each object:

43.00
43.00
0.00
0.00
0.00
43.00

(Measurements are in mm)

5. When you are ready to print, check the following:

BEFORE PRINTING:
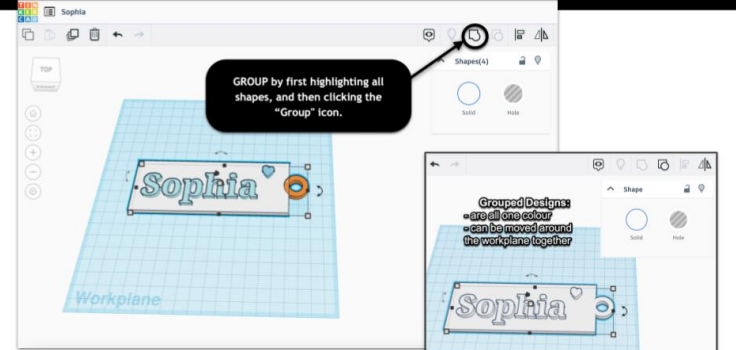
#1 - Make sure your finished design is sitting on the workplane:

✔
0.00
0.00

✘
5.00
5.00

Box is hovering over top of the workplane

✘
0.00
-2.00

Part of the box is underneath the workplane

#2 - Group your shapes together so they are one object:

Sophia

GROUP by first highlighting all shapes, and then clicking the "Group" icon.

Shapes(4)
Solid   Hole

Sophia

Workplane

Grouped Designs:
- are all one colour
- can be moved around the workplane together

Shape
Solid   Hole

Sophia

#3 - Change the name of your design to your first name (and **block** if working with a class):

TINKERCAD ☰ Tremendous Jaagub-Esboo

(Click on name on the top-left corner of the screen)

TINKERCAD ☰ Sally - block A

6. See library staff to slice and print your 3D model!

*For a TinkerCAD tutorial, watch the following: https://www.youtube.com/watch?v=A9Hz8JxvH18

*For how-to tutorials for using Tinkerine Suite go to https://u.tinkerine.com/courses