DKPL Nancy D. Castle Collaboration Class Room
3D Printed Ring

Today you will create a ring using a 3D printer. At the end of class we will ask you to fill out a online survey. This will help the library understand the communities need for a makerspace. We will be using TinkerCad which is available online with a free signup—however for this project you'll be working on the libraries' account. TinkerCAD will be open and logged in for you.

Tips

Keyboard shortcuts: Undo (Ctrl+Z), Select All (Ctrl+A), Copy (Ctrl+C), Paste (Ctrl+V)
The 3D printer prints with one color of filament.
Feel free to talk with or assist your neighbor in this informal learning environment

Class Goals:
Become familiar with TinkerCAD's user interface
Change dimensions on an object
Align objects
Group objects
Save as an .stl file

Let's Begin!

1. Measure your finger

We'll be using a micrometer to measure your finger using millimeters.
Circumference = _____
Please Add .4 to the above number to allow for the 3D printer to print the shell properly.

2. Starting a new project

In the middle of the page, under the heading of "My recent designs", click
Create legacy Design
Change your design's name by clicking on "Design" on the top toolbar, clicking "Properties" and then under name, replace the TinkerCAD generated name with your last name followed by your first name.

3. Get acquainted with the menu and tools

To move shapes, click, hold and drag avoiding arrows and black/white cubes
To resize shapes, click, hold and drag on black cubes (one dimension) or white cubes (two dimensions)
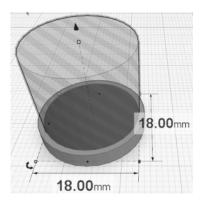Raise/lower shapes with the black cone
Pull out the ruler to be able to measure objects

4. Creating the Ring

Bring out the Hollow Cylinder first. Size it to match your finger size. Increase the height so it is easy to see for the next step...
Bring out the Solid Cylinder. Size it a few mm larger than your finger size.
Use the Align Tool to center the two shapes

5. Group your shapes
> Click, hold and drag around both shapes to select all
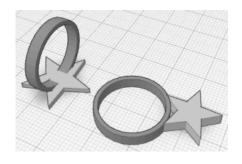> Click Group

6. Ring Height
> Carefully size the height of the ring to 3 or 4mm

7. Flat Face or Standing Design?
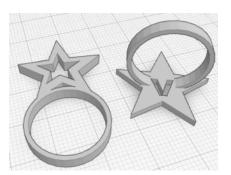> Determine which design you want
> If you want a flat face, you will have to rotate the ring to a standing position
> If you want a standing design, you can leave the ring flat

8. Adding the Design
> Experiment with one or two shapes by adding and subtracting them
> Important: the design and the ring MUST intersect. If using a flat design, make sure the ring and shape are the same height

9. Grouping your ring and design
> Are your objects at the right level?
> Are they properly intersecting?
> Great! Select All and Group

10. Download your design
> If you'd like to keep a copy of your ring, we'll show you how to download the stl file.

12. Survey
> We'll hand out the survey which helps us improve our workshops and learn about makerspaces in libraries.