Textures, Tools, and Time
Part 1a: Collaboration

Presented by Elizabeth New & Shalya Marsh
To start our collaboration, drawings of shadows were converted to vectors in Adobe Illustrator.
8mm hole

100mm diameter disc. 6mm thick.

This is 15mm. Bolt will cover center part
The Illustrator Files were then used to model the extruder dies.
Sketchbook drawings are used as source material for extruder dies and clay cutters.
The exterior of the tile cutter model
The interior part of the model is used to push the clay from the stamp.
Here you can see both parts together
Textures, Tools and Time
Part 1b: Tools In Use
Frances Priest
Laser cut Extruder Dies
This image shows a 3D printed PLA cottle system for making a plaster mold. The Cottle is filed three times with plaster to create mold parts. The yellow tumbler seen in the foreground was made from the plaster molds seen in the back.
Tyler Lotz
CNC milled blue foam insulation for making plaster molds
Taekyeom Lee
Stamps and Business Card Printer
Brooks Oliver
3D Printed Drying Jig
Oregon College of Art and Craft
Fab Lab

3D printed wood burning tool
printed in Steel at shapeways.com
Jo Kamm’s digital fabrications class at KCAI
Bisqued terra cotta tiles
Detail of the 3D printed tool used to make tiles
Jo Kamm’s digital fabrications class at KCAI
Bisqued tiles created by Kendall Hammond
Detail of the 3D printed tool used to make tiles
Stamps modeled in Fusion 360 and printed on a MakerGear M3.
The stamps were then used to make ceramic tile.
The clay is dusted with a thin layer of corn starch to prevent the stamp from sticking.

West Virginia Universities – Art 593 3D Printing
Once modeled the stamp can be scaled to provide variation.

West Virginia Universities – Art 593 3D Printing
Finished Tiles

West Virginia Universities – Art 593 3D Printing
The 3D printed stamps were also used to inlay slip for mishima.

West Virginia Universities – Art 593 3D Printing
Lithophane Generator: http://3dp.rocks/lithophane/
In the Settings Menu set the image to Positive Image so that the clay you press will be a negative. Set Thickness to determine how deep the relief is. Set the Vectors Per Pixle to determine the amount of detail in the lithophane.
You can easily export an STL file for 3D printing
Textures, Tools and Time
Part 2

Presented by Elizabeth New & Shalya Marsh
Free Programs we will be talking about today

1. Tileshop - [http://asciiascetic.github.io/projects/ashlar/#](http://asciiascetic.github.io/projects/ashlar/#) this software was developed by Colin O-Keefe for Jo Kamm at KCAI to help people create tessellated files

1. Cookie Caster - [http://www.coookiecaster.com](http://www.coookiecaster.com) app for making 3D printed cookie cutters that is PERFECT for making simple tiles

1. Tinkercad - [https://www.tinkercad.com](https://www.tinkercad.com) - simple drag and drop shapes and great introductory tutorials for people who are just getting started.

1. Onshape - [https://www.onshape.com](https://www.onshape.com) - more complex, but more options. Allows you to create shapes on multiple axis using drawings to create your shapes. Free when your files are publicly available, or if you are a student/educator otherwise there is a yearly fee.
Not everyone uses a computer in the studio

How do I make this stuff?
Making custom tessellated tiles...

Can you use an app?
Then you can make tile cutters!
Ashlar - Tileshop
Developed by Colin O-Keefe with Jo Kamm at KCAI
Ashlar (alpha)

(Ashlar is a work in progress. For best results, please use Chrome)

editor

[Diagram of tile editor with options for Active Edge, Line Width, Scale, Rotation, Tiling Type, and buttons for Freehand, Name This Tile, Export Tile as SVG.]

Here is a link to your tiling -- SHARE IT!

Enjoying the application? Do you have a particular use case in mind? I'd be happy to hear about it. Please do check out the Source on Github

Last Updated Sun Jul 24 09:58:44 CDT 2016
Ashlar (alpha)

(Ashlar is a work in progress. For best results, please use Chrome)

editor

Name and export your file, or take a screen shot

Enjoying the application? Do you have a particular use case in mind? I’d be happy to hear about it. Please do check out the Source on Github

Last Updated Sun Jul 24 09:58:44 CDT 2016
Cookie Caster - AKA making tile cutters
Howdy!
Would you like to take a tutorial on how to draw delicious cookie cutters?

- Sure! I love cookies!
- Dismiss

Select
Click on the canvas to get started

Upload screen shot

Download Options:
- Max Size:
  - Medium (3.5"
- Height: 0.65"
- Thickness: Standard (2 mm)

Download 3D File

CookieCaster provides a free service to create a 3D printable model of your cookie cutter. If you don’t have your own 3D printer, you can use a site like Shapeways to order after downloading your 3D model.
Cookie Caster provides a free service to create a 3D printable model of your cookie cutter. If you don’t have your own 3D printer, you can use a site like Shapeways to order after downloading your 3D model from our site.
More cool samples from Jo Kamm’s workshop...

Valentina Trinidade-Soria

Caroline

Shontaja Brown

Muriel Hansen
Making a texture roller

Only slightly more complicated than the cutter
Your mouse is really important.

- **MAKE SELECTIONS**
- **SCROLL** to ZOOM in and out
- **PRESS** to MOVE object in one Direction
- **ROTATE** object in 3D workspace
Left Mouse Button - make selections
Center Button - Move and Zoom
Right Button - rotate in 3D workspace
TinkerCad
Great free software for your very first 3D models

Tinkercad is a simple, online 3D design and 3D printing app for everyone. Tinkercad is used by designers, hobbyists, teachers, and kids, to make toys, prototypes, home decor, Minecraft models, jewelry – the list is truly endless!

Start Tinkering now
Let's get started
Along with the mouse - You can use this box to change your view.

There are more menus that will become available when you have an object selected.

There are more shapes in this drop down menu.

You can drag and drop any of these shapes.
Drag and Drop Shape from menu
Use this arrow to raise and lower the part.

When you hover on these white dots it will give you the length and width of the part. Drag with these dots to change the length and width.

Top Dot will show the height of the object, and allow you to change it by dragging the dot.

Or type the size into the white box.
Now the texture roller!

Drag and Drop!
Use the arrow to select and drag the last ball.

This is what your shape will look like.
Select these parts and group them together.
In the top left corner is the duplicate button.

Duplicate the group and use the arrow to lift it up.

Select arrows to turn the part.

The compass will appear.

The red section shows you how far you have turned.
Control D is duplicate, it will copy an entire action if all the parts are selected!

Every time you press CTRL D it will copy lift and turn the part.
When you select your items and choose align, these dots show up.

Wobbly part

When you select the red dot it will align in that direction

When the parts are aligned the dot turns grey

Aligned part
To create a hollow space in the center, select a cylinder and use the white dot at the top to drag it taller until it is longer than the roller.
Use the same alignment tools to center the cylinder in the roller.
Or if you know you want a hole to start, you can use the already greyed out cylinder in the menu.

When an object is selected you will see the menu that says solid and hole. If you select hole, your part will become grey and translucent.
Select all your parts and then use the same button as before to group everything together.
Now it is all one part! Next up, Export your part for printing.
OBJ and STL are the most common types of files. If you have a shop tech, ask them what types of files your machines can understand.
Making a custom glaze stencil:

Kinda tricky, but well worth the effort.
Onshape.
Try this after TinkerCad gets boring.
### Opening page - Create a new file

#### Onshape

<table>
<thead>
<tr>
<th>Name</th>
<th>Workspace</th>
<th>Modified</th>
<th>Modified by</th>
<th>Owned by</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>My documents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Created by me</td>
<td></td>
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<tr>
<td>Shared with me</td>
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</tr>
<tr>
<td>Elizabeth New Design</td>
<td></td>
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<td></td>
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<tr>
<td>New label...</td>
<td></td>
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<td>Public</td>
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<tr>
<td>Tutorials &amp; Samples</td>
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<td>Track</td>
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</tr>
</tbody>
</table>

#### Recently opened

No recently opened documents.

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**Links to Tutorials**
The onshape workspace

Many tools. Most of which we will not discuss today due to time - Watch their tutorials, they are great.

This is a menu of every step you make. You can choose what sketches or features you want to work on.

Always keep in mind you can use the ESC key to get out of any feature you are using.

Multiple planes to draw on.

This box is like the direction box in Tinkercad. Along with your mouse. It lets you choose what direction you view the object.
Decide what plane to draw on - hide the other ones

Click on the eye. When it is crossed out then the top plane is no longer visible. Follow the same process for the right plane. We will be working on the Front Plane only.
Start your sketch by clicking the sketch button.
Choose a plane to draw on.

This box will show up first (make sure it is highlighted blue).

When you click on the Front Plane the box will auto fill, and it will allow you to start sketching.
Sketch 1 - Practice - make a center line

This is part of the menu at the top left of the screen. We will be using the LINE button and the CONSTRUCTION button.

**Onshape Simple Cup**

**Line (l)**

Create a line between two points or a chain of lines.
1. Click the start point.
2. Click the end point.
3. Repeat to create a chain of lines or double-click to end.

**Construction (q)**

Create new construction geometry or convert existing entities to construction.
Construction geometry is ignored when the sketch region is used for features.
1. Select Construction icon.
2. Select a sketch tool to create construction geometry.

Or, select a sketch entity, then toggle its state by selecting the Construction tool.
Selected buttons
The name of your sketch so you can find it later if you want to change something

You can align with the center point if you hover over it. A yellow line will appear to show you when it is straight.
Finish your first sketch

Click the green check mark in the sketch box we created earlier to finish the sketch.

This line will go from Blue to Grey. You can not draw in this sketch any longer. Unless you choose to edit it.
You have now started sketch 2 you can view sketch 1 below it, but the things you do in sketch 2 will not affect sketch 1.

Sketch 2 begins the same way as sketch one. Select the sketch button and then select the front plane.
To get started on the stencil...

Select the circle from the sketch menu and draw the circle from the center point to the size you want.

You can edit the size by using the measurement tool in the toolbar. In this case I used mm, but you can also change your measurement to inches in the main menu.
Approve circle drawing

Click the check box
Select the face of the drawing you want to extrude (like a clay extruder!). Use the arrow to control the amount, or the box in the menu on the left.

Select “new” from sub menu

Type in thickness
You will need a DXF or DWG file

There are free options online but they need some work
Select your file
This menu opens and will tell you if your file uploads successfully.
In the sketch menu bar there is an icon of a piece of paper with a DXF written on it. Select this button and a menu will open where you can select the file you want to apply.
Your drawing will appear in the file. Sometimes you will have to adjust the size by dragging the drawing to be larger or smaller.

Use the check box to exit the sketch.
This time use the “remove” sub menu

When you hover over the sections they will turn orange.

Each of the sections can be selected separately so that you can control how much of the drawing is used.
You can choose the depth that the holes will go by using the arrow that appears.
TAH DAH!
It's Finished.
To export your file, left click on the part studio tab at the bottom of your screen and select the Export option.
Name your part
Select your file type from the menu
Select the Binary, not text
Select the measurement
Select the quality of the file
Select Download.
additional uses...

Custom face rib
Skull pattern roller

Different materials = different textures
Make these tools - files online

TinkerCAD Roller:
https://www.tinkercad.com/things/bv98FGVk7

OnShape Glaze Stencil:
https://cad.onshape.com/documents/0908c4d75915e5d3ea932a5b/w/b9af6cb192f2f2ce782b47aa/e/c12b1055f9364ec4fdf26380

OnShape Face Rib:
https://cad.onshape.com/documents/ca02b8ce3ab7f0f66d4ed38e/w/d7634d6fe46fca737b9e3121/e/0d53b131c8420ab30e83cda0

OnShape Skull Roller:
https://cad.onshape.com/documents/c024a854842259f6dcafbbf6/w/34d545cdfb76251443751db7/e/b772574a756569f905859506
Many thanks!
questions?

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