

LESSON 6

Creative Type

Typography

This lesson introduces you to typography and printmaking. You will use the 3D printer as a tool to create another tool.

In this project, you will design or find letters online, use those designs to create embossed 3D models that will then be used to create foam block prints. Once the alphabet been created as both embossed and engraved foam block letters, you will then pick, choose, and combine blocks to create your own unique designs.

Recommended age range 8+

Category: Beginner lesson

Tags: 3D CAD, 3D printing, 3D printed, beginners, design, education, block printing, photoshop, Ultimaker Cura

Software: Photoshop, Ultimaker Cura

Lesson Duration: Three to four- 45 minute class (additional time to print)

Estimated filament use (per person): ~1.6-3m/~12g-24g



Lesson resources include:

- Lesson Overview
- Onesheet
- Walkthrough
 - Photoshop and Ultimaker Cura
- Resources
 - Letter images
 - Letter Templates
- Help sheets
- Example STL files
 - 3mfs

Objectives

- Understand that relief prints reverse the image from the block to the print, but that by 3D printing first, you do not need to think about the reverse
- Understand the steps in a relief printmaking technique
- Use symbols to communicate ideas
- Explore the word as a dynamic collection of interdependent I
- Understand how typography conveys meaning and message
- Use negative, as well as positive shapes, effectively in prints
- Produce a 3D model from a 2D design
- Understand and execute boolean operations
- Use Ultimaker Cura to create STL files

Creative Type: Bill of Materials (BOM)

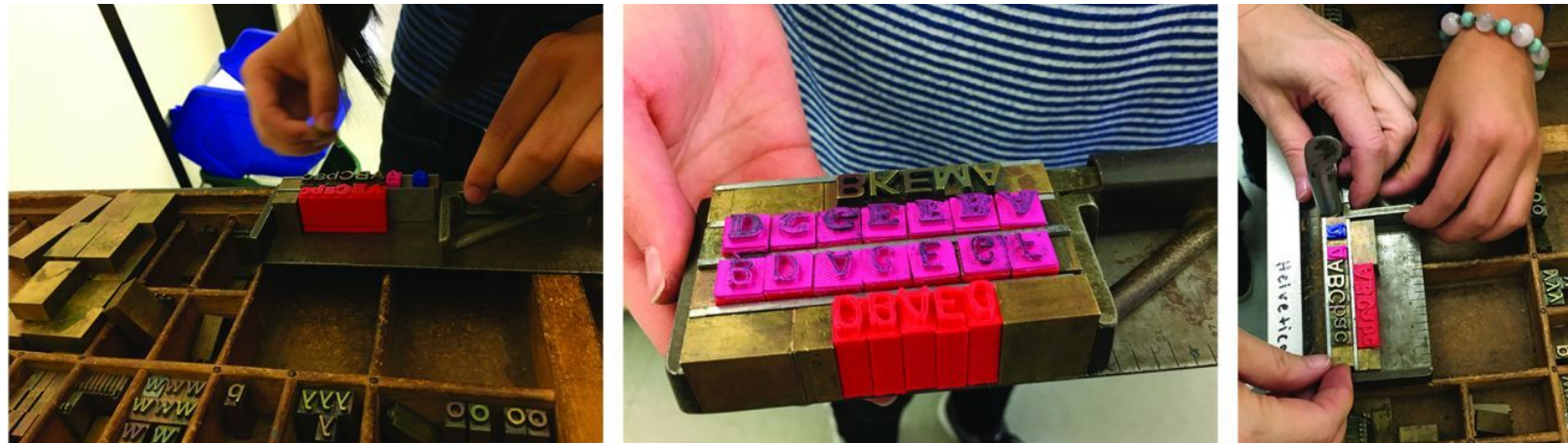
1. Clearsnap Magic Stamp Moldable Foam Stamps Sheet Stock ([Amazon](#)). You'll have to buy the 3 sheets together, however you only want the medium thickness sheet.
2. Supla 60pcs 1.5 inch Natural Unfinished Craft Solid Wood Blocks ([Amazon](#))
3. Fomei Top Quality 50pcs 3M Double Sided Black Foam Tape Strong Pad Mounting Adhesive ([Amazon](#)) if you have little patience, or Beacon Craft Foam Glue, 2-Ounce ([Amazon](#)) if you have more patience (you have to wait 15-30 minutes for glue to turn clear before you can attach foam to block)
4. Brayer
5. [Water-based ink](#) ([Stamp pads](#)) work well with Clearsnap Magic Stamp Moldable Foam Stamps blocks, while block print ink works well with the sheets.
6. Paper
7. Heat gun

Typography

In the context of visual communication, the arrangement and the shape of letters and text is known as typography.

Early examples of typography date back to ancient Greece and Rome, usually in the form of imperial seals or dies used for making money ([What is Typography](#)).

Typography began to evolve with the invention of movable type by Bi Sheng in China around 1041. Using clay tiles, Sheng created a system where each Chinese character was represented on a single tile, thus allowing for words and phrases to be printed on paper using ink.

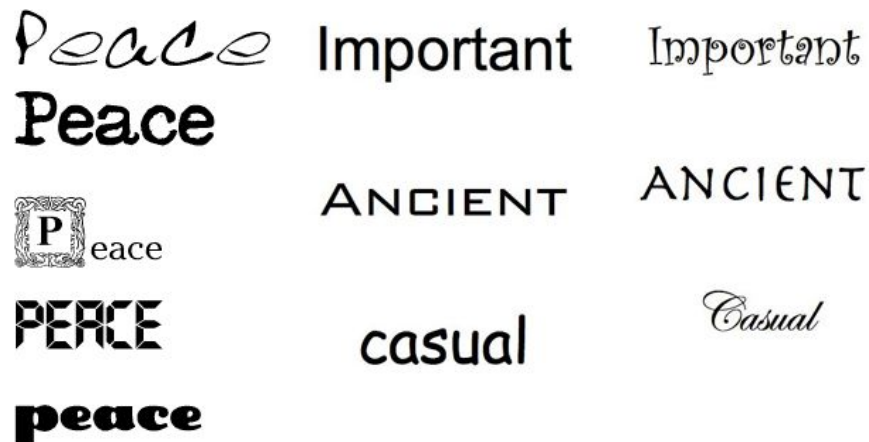


Typography

Over time, the ceramic tiles were replaced with woodblocks, but the process of printing was still slow and time-consuming because it had to be done by hand. In 1440 Johannes Gutenberg created the first mechanical printing press. Unlike previous handmade prints, Gutenberg's press used metal plates and a mechanized system to reproduce texts quickly and more efficiently. In fact, many elements of Gutenberg's process are still used today in the printing process. With the aid of the printing press, new ideas and concepts could be shared within communities and, when carried by travelers, could make their way around the world. The Gutenberg press is credited with beginning a global revolution of sharing ideas.

Intro Activity

To introduce students to typography you can present the same word in different fonts and have students talk about how the fonts influence how they think about the word.



Activity

Have students design in Photoshop or search online for [individual black and white letters](#). Make sure that the images are only black and white, the details of the letter are not too small, and the lines are not too thin. Lines must be at least 0.4 mm thick.

The width and length of the letters should ultimately be limited to 1.5 inch or 38.1 mm to keep printing time to a minimum.

Have students design or find one letter or have them explore and design all the letters.

If designing letters, give students a theme to work with like animals, personalities, emotions, adjectives, etc.

For inspiration, see Christopher Rouleau's project [Alphabet 100](#) where he drew 100 letters every week for 52 weeks to come up with 26 interesting designs.

Some inspiration

 <p>http://moyersketchbook.blogspot.com/2012_01_01_archive.html</p>	 <p>http://moyersketchbook.blogspot.com/2012_01_01_archive.html</p>	 <p>http://moyersketchbook.blogspot.com/2012_01_01_archive.html</p>	 <p>http://moyersketchbook.blogspot.com/2012_01_01_archive.html</p>
 <p>http://2.bp.blogspot.com/-BnLtghY0Gy8/TvzpCu3hiQI/AAAAAAAAAa8/HppmAArNAYY/s1600/Letters106.png</p>	 <p>http://4.bp.blogspot.com/-IIRxjwxUkw/TuqKdjelail/AAAAAAAAAaI/1_bKtqUvFK4/s1600/Letters105x.png</p>	 <p>http://3.bp.blogspot.com/-cSNfPQp6Ztc/TuC98dQrMJI/AAAAAAAAAAZ/1WQRx0bQ74pg/s1600/TippyLetters.png</p>	 <p>http://2.bp.blogspot.com/-soJ057Spms0/TtkefzmrThI/AAAAAAAAAYQ/tuPF7aHAQol/s1600/Letters104.png</p>

More Inspiration

 <p>http://4.bp.blogspot.com/-gtKK73OYEMQ/Tq8JgBCqm2I/AAAAAAAAAV8/hT6P-F5pOdQ/s1600/Letters103.tif</p>	 <p>https://www.flickr.com/photos/36106576@N05/6121495555/in/photostream</p>	 <p>https://www.flickr.com/photos/36106576@N05/5772050058/</p>	
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Printmaking

Printmaking at its most basic level involves the creation of a matrix (wood block, litho stone, etching plate, etc.), inking that matrix, and then transferring that ink onto paper. Essential to printmaking is the production of multiples and repetition.

Block Printing is one of the oldest types of printmaking, dating back to fifth century BC. While there are many different techniques associated with this form, it is essentially accomplished by using a carved material covered in ink that is transferred without the use of a press to paper or fabric.

Block printing can be done with many types of materials, like wood or linoleum, but foam makes it an easy, inexpensive, and safe activity to do with younger students.

The Clearsnap Magic Stamp Moldable Foam Stamps Sheets and blocks are easy to use. Heat them up with a heat gun and press the 3D printed positive into the material.

3D letters from Photoshop images

3D models made from png and jpeg files. These prints are used to emboss the foam blocks or sheets.



Inking the block

1. Squeeze a small amount of ink onto a piece of glass or plexiglass, and roll it out with a roller (brayer). You are looking for a thin, even layer so that you can apply the ink evenly to the block.
2. Roll the ink on to the block, making sure there is a thin but even layer on the whole design.
3. Take the block and press it down onto the paper or fabric. You can do this with your hands, just make sure you are applying even pressure. Color will be stronger in some areas if uneven pressure is applied. Alternatively, lay the paper on top of block and use a rolling pin to get even pressure.

Inking the block

If you are making one inch letters you can experiment with [Water-soluble stamp pads](#) instead of using inks and brayers.



Extensions

1. Students can use the techniques learned here to create larger scale prints made up of shapes and images.
2. Students can plan and execute a relief print with the intention to protest or persuade. Focus should be placed on the effective definition of shape, use of symbols, and impact on their intended viewers.
3. Students can investigate the relationship of letterforms and the variety of sounds they can represent.
4. Students can explore the semantic properties of scale, contrast, position, rotation, and repetition.



Additional resources

- [A Virtual Museum of Typography](#)
- [Why Subtle Typographic Choices Make All The Difference](#)
- [Alphabet 100](#)