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## Digital Design to Mold to Clay Tile

### OVERVIEW

This project gets students to create a digital design using TurtleArt software. Their designs are then downloaded into Tinkercad, modified and downloaded as stl files. Once printed off, these molds are then pressed into clay and the clay is fired in a kiln, giving the students a clay tile they can paint.

### GRADE LEVELS

This project would be appropriate for students in upper elementary grades and middle school (10 – 14 years old). But could be used by older students depending on the programming knowledge you want / expect the students to have.

### STEPS TO COMPLETION

- 1.) Students use the [TurtleArt](#) software to program a tile pattern. (examples of patterns include [this](#) and [this](#).)
- 2.) Once students have their designs created, they are saved as an image and cropped as you would any other image or photo to remove any whitespace,
- 3.) The image files need to be converted into an svg file (using software such as [Inkscape](#)) so that they can be manipulated and readied for 3D printing.
- 4.) Once you have converted the images into svg files, they can be imported into [Tinkercad](#) simply using their import tool.
- 5.) Once the files have been imported into Tinkercad, students can resize their tile stamps to approximately 10 cm square and 4 mm tall.

6.) When resized, the design are ready to be downloaded as an .stl file for 3D printing.

7.) After downloading the .stl file, they are printed on your 3D printer.

7.) The students practiced stamping Play-Doh in anticipation of stamping clay. Students learned how much (or little) pressure they needed to apply to the stamp to get a good impression on the Play-Doh.

8.) Next, the students used their 3D printed stamps to create their tiles by stamping them into clay. The clay was forgiving and if the design did not come through the first time: they could re-roll out the clay and re-stamp it.

9.) Once the students were satisfied with the quality of the stamped clay and they were glazed, the tiles were fired in a kiln and then painted.

### FOLLOW UP

After designing and creating their tiles which are similar to Islamic art, students could be challenged to create designs from other cultures or time periods.

### EXTENSION QUESTIONS

- What are the math concepts that could be explored in the tiles?
- What role does technology play in art production?
- What other kinds of art could be created using the molds that were created?

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