

Lasercut Tangram Puzzles

Description	Tangram puzzle and puzzle pieces created using laser cutter.
Minimum Time Required	Completed Setup: 5-10 minutes Activity time: 2-5 minutes Design of puzzles: 30-60mins Laser cutter use: Hours (depending on size/complexity of shape)
Materials	<ul style="list-style-type: none"> <input type="checkbox"/> Tangram puzzle pieces using wood or acrylic <input type="checkbox"/> Tangram puzzles using wood <input type="checkbox"/> Index cards for suggestions <input type="checkbox"/> Adobe Illustrator file (.ai file) with tangram puzzle pieces and puzzle examples
Creation Setup	<ul style="list-style-type: none"> ● Vector cut settings: RGB Red, 100power/6speed ● Raster etch settings: RGB Black, 50power, 100speed
Completed Setup	<ul style="list-style-type: none"> ● Count to make sure there are 7 total tangram puzzle pieces <ul style="list-style-type: none"> ○ 2 large right triangles, 1 medium right triangle, 2 small right triangles, 1 medium square, 1 medium parallelogram ● Place tangram puzzle pieces in a small baggie or cup ● Place the stack of laser cut puzzles beside the small baggie or cup
Learning Goals	<ul style="list-style-type: none"> ● To be introduced to technology available in the NCSU Libraries Makerspace ● To interact with laser cut materials and learn about projects that can be made with the laser cutter. ● To employ simple problem-solving techniques using laser cut-made items
Facilitation/ Prompts	<ol style="list-style-type: none"> 1. <u>Spark:</u> <ul style="list-style-type: none"> ○ Showcase example objects; ○ Ask participants to solve the tangram puzzles. 2. <u>Sustain:</u> <ul style="list-style-type: none"> ○ Ask questions about what they are creating ○ Ask questions about what the participant is making and how they are approaching their design; <ul style="list-style-type: none"> ■ Suggest ways to increase complexity of design. ■ Be patient, let participants solve their own problems; ■ Do offer strategies for working around problems, especially if asked; ○ Use their design and approach to tie back to 3D printing

processes.

3. Deepen:

- Ask participants to create a three dimensional object.