

3D Printing

1. Custom Name tag

We wish to design a personalized keychain as a souvenir item. The keychain has a basic dimension of 50mm (length) x 15mm (width), with attachment for keyring. Features on the surface of the keychain (e.g. (Lettering/artwork) must be thick enough (1 ~ 1.2mm) so that it comes out well after 3D Printing. Corners of the keychain are rounded off with 4mm fillets.

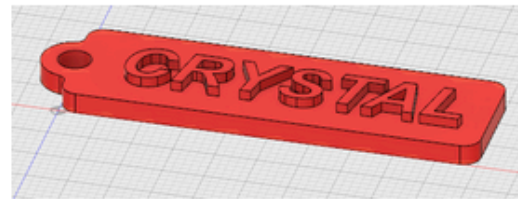
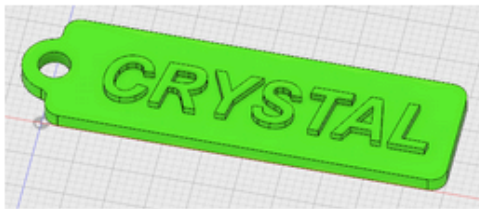
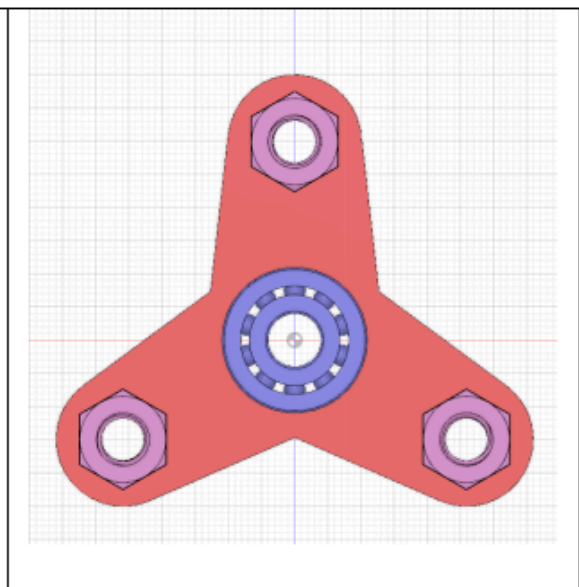
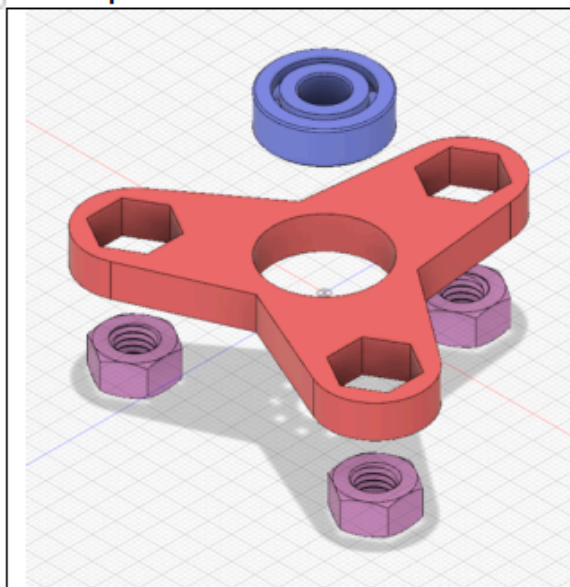
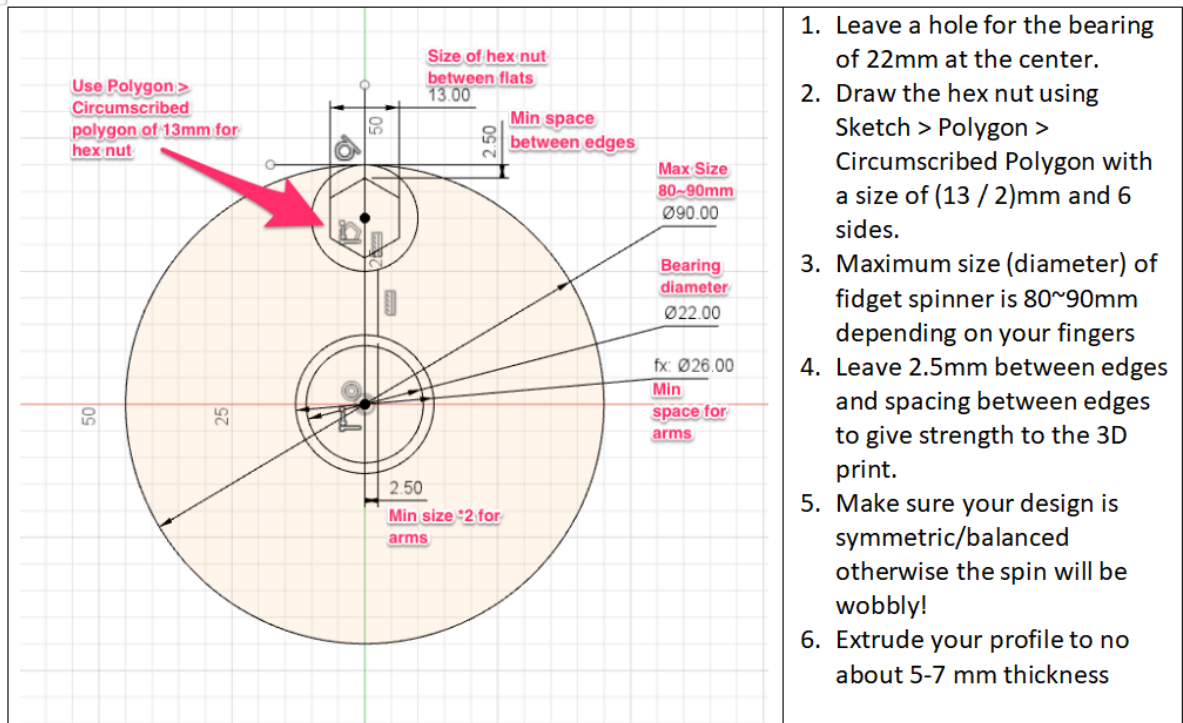


Figure 1

2. Fidget Spinner

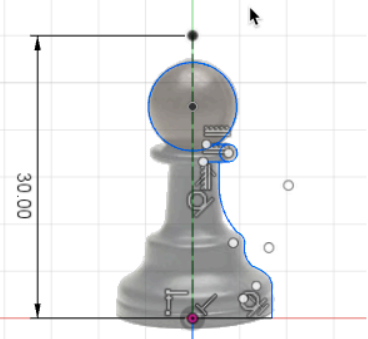
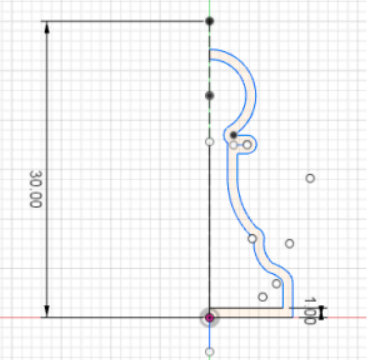
Sketch the profile for a fidget spinner toy and extrude it into a 3D model. 3D print the fidget spinner model. The fidget spinner uses the following parts:

- 608 bearing x1
- M8 hex nut x3



3. Chess piece

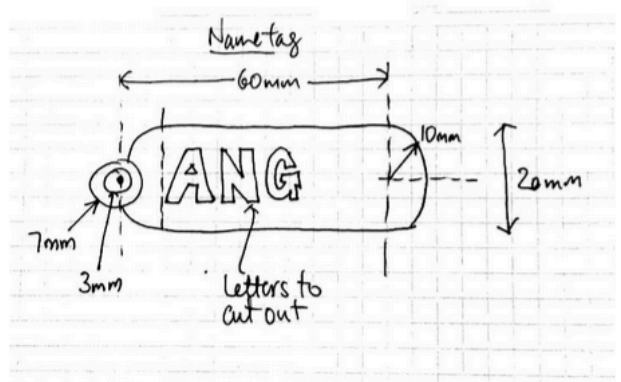
- Download a silhouette for a chess piece, e.g. pawn
- Using the image that you have downloaded, sketch the profile of the piece and turn it into a 3D model using the appropriate 3D command (e.g. extrude, revolve). 3D print the chess piece.

	<ul style="list-style-type: none"> • Start by drawing a bounding rectangle 15mm x 30mm which will be the limits of half your pawn • Attach a <i>canvas</i> and use the SKETCH tools (line, arc, circle) to draw an outline of the pawn • Switch off the canvas after you have finish
	<ul style="list-style-type: none"> • Create an offset of at least 1mm • Ensure that your profile is CLOSED

Laser Cutting

1. Personalized Keychain

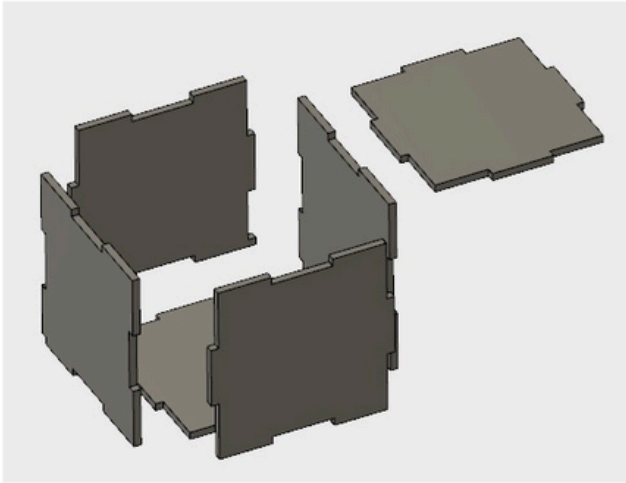
- Draw the design on paper
- Create the design using Fusion 360
- Convert the design to a 2D drawing and export it (DXF file)
- Read the DXF file into the Laser Cutter System
- Cut

	<p>Make a drawing of your keychain Approximate size: 20mm x 70 mm x 3mm (thickness)</p> <p>The small ring attachment should have a diameter of about <u>6mm</u> and 14mm</p>
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2. Trinket Box

Our goal is to create a 3D cube (size: 60mm x 60mm x 60mm), made of either plywood (thickness 2.5mm) or acrylic (thickness 3.0mm), with fingers & slots between the faces, to ensure proper alignment. The tab width (finger) is 20mm, or 1/3 of the length of each side.

An illustration of the 3D cube:



Note:

Length of each side: 60 mm

Length of each tab: 20 mm

Thickness of material: 2.5 mm

Parameters:

len - 60 (length)

t - 2.5 (thickness)

tab - len/3 (tab width)