3D out of 2D

Shared by: K12Maker team at MIT Edgerton Center

Specialized tools and materials used:	Experience level required:
Laser Cutter, or vinyl cutter, or scissors	Beginner, Intermediate

Grade Level and Subject (of this example): 9th Grade

Topic/Content Standards (for this example): Social Studies, ELA

Summary of Project:

Students create 3D figurines from laser cut wood that do not require glue. The challenge of this project is creating the patterns for the laser cutter to use. It requires using imagination, online photo editing programs, and understanding how to use a laser cutter. This project is great for recreating characters from stories, historical figures, symbols, objects, and important trinkets from a book or lesson. Students could work either independently or in small groups for this project as it has many steps. This project should take about three 45 minute class periods. One for collecting ideas and images, the other for editing the images, and the third to send to the laser cutter and get a finished product. For this project, students should have access to a computer and have an open mind to learning digital editing.

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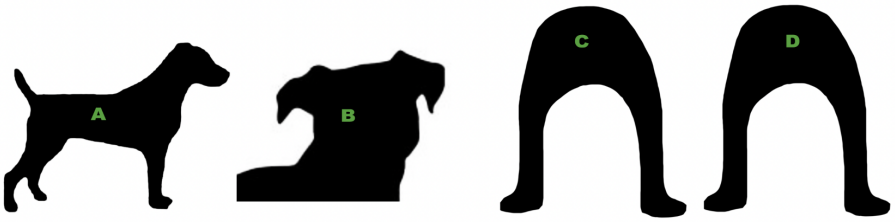
Jack Russell Dog Example:

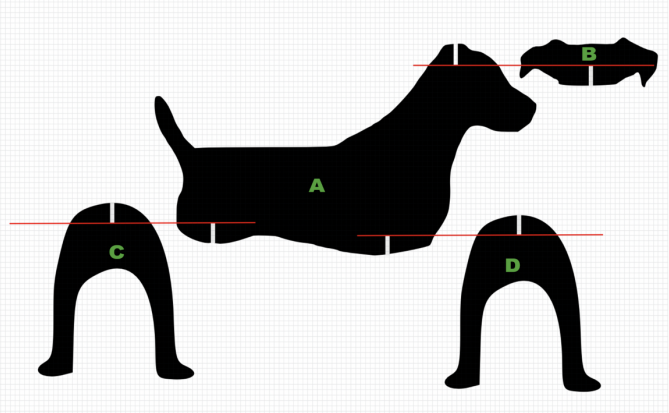
1. Find a side profile and front view showing ears of the dog

2. Create 2 "dog leg" silhouettes by hand or in a graphics program



3. Turn dog JPGs into SVGs using picsvg.com or similar tool

4. Edit SVGs to desired shapes and add connecting "slots"



A) Erase the legs on the silhouette A and erase the bottom face on silhouette B.

B) Create the mating slots by making rectangles the thickness of the material.

C) Place the rectangles over each silhouette as shown in the example. Then subtract the rectangle from the silhouette using a compound tool

D) See the red lines on the the example to understand how align each slot

Download a pattern for this dog model [3D out of 2D model - JackRussell dog.pdf]

Suggested resources

- Free JPG to SVG Converter
- Free SVG Editors: Inkscape, Vectr, Gravit

Possible Content explorations

- Design and create a set of animals or characters that have significant identifying features

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