

Paper Cutting

Paper Cutting Across Cultures



Chinese



Jewish



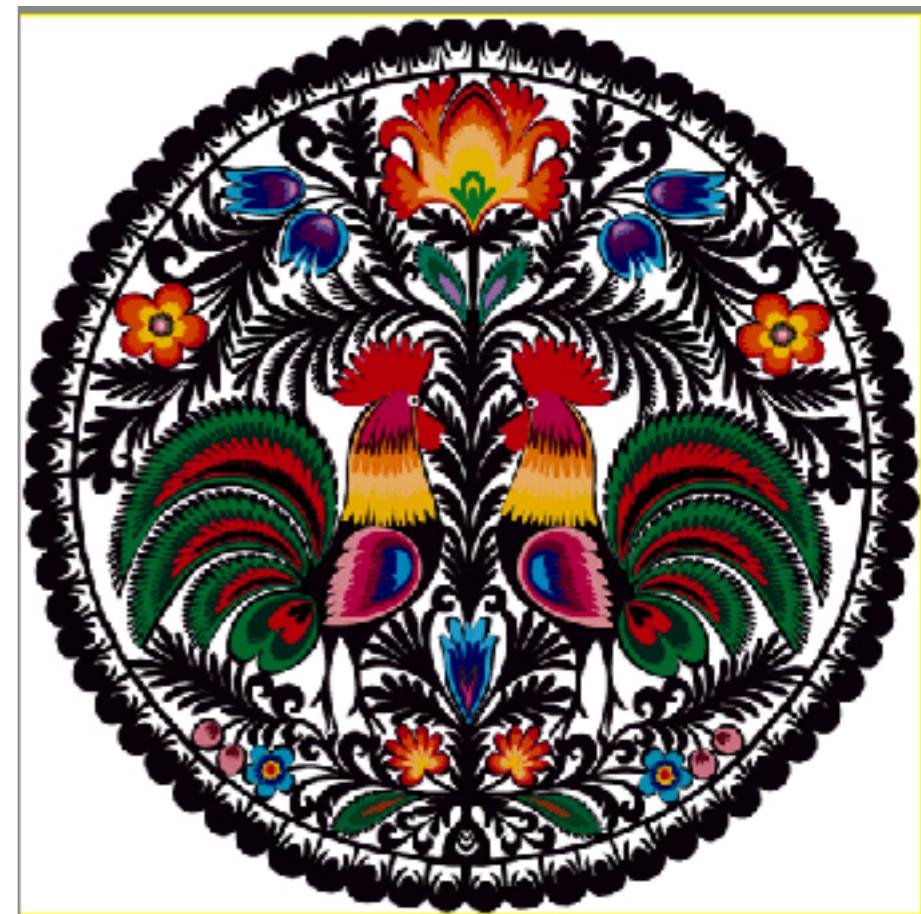
Swiss/German



Japanese

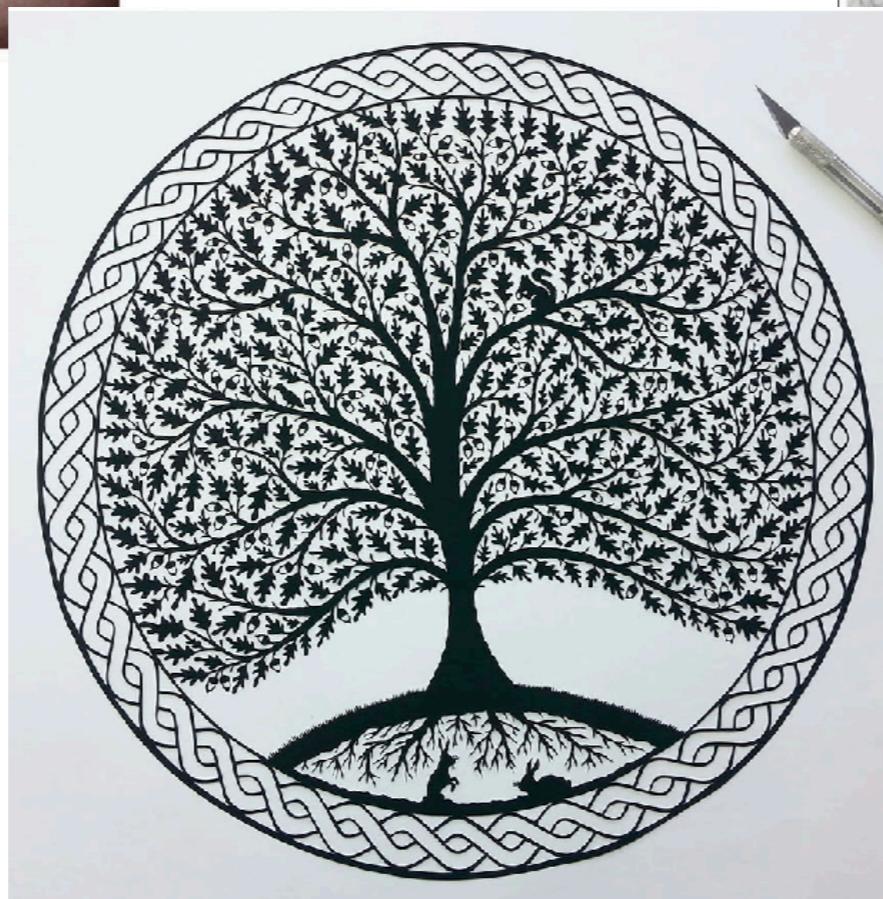
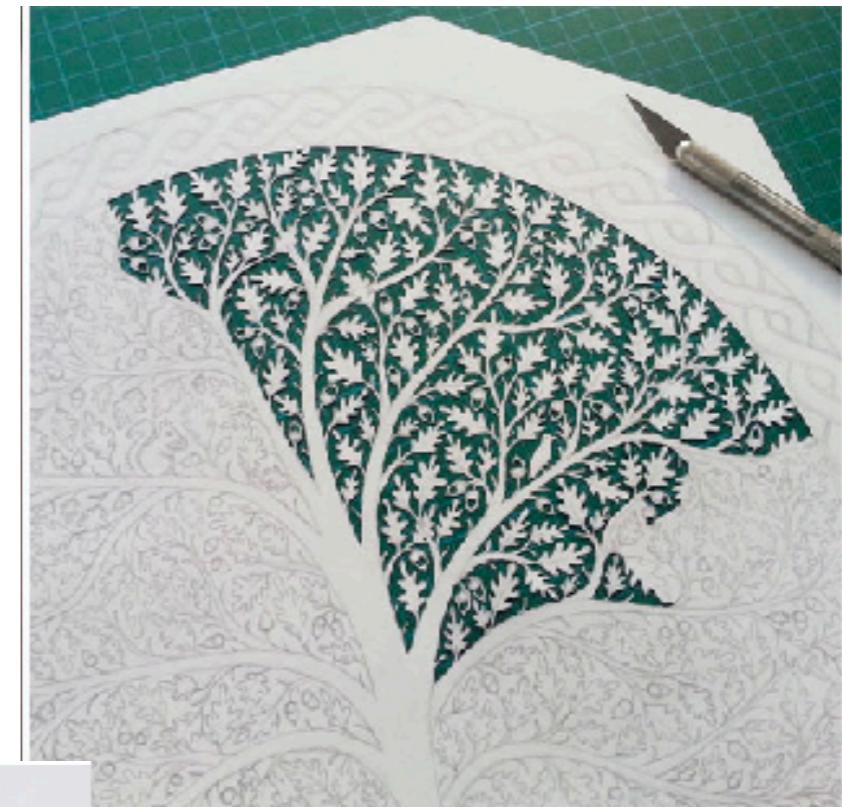
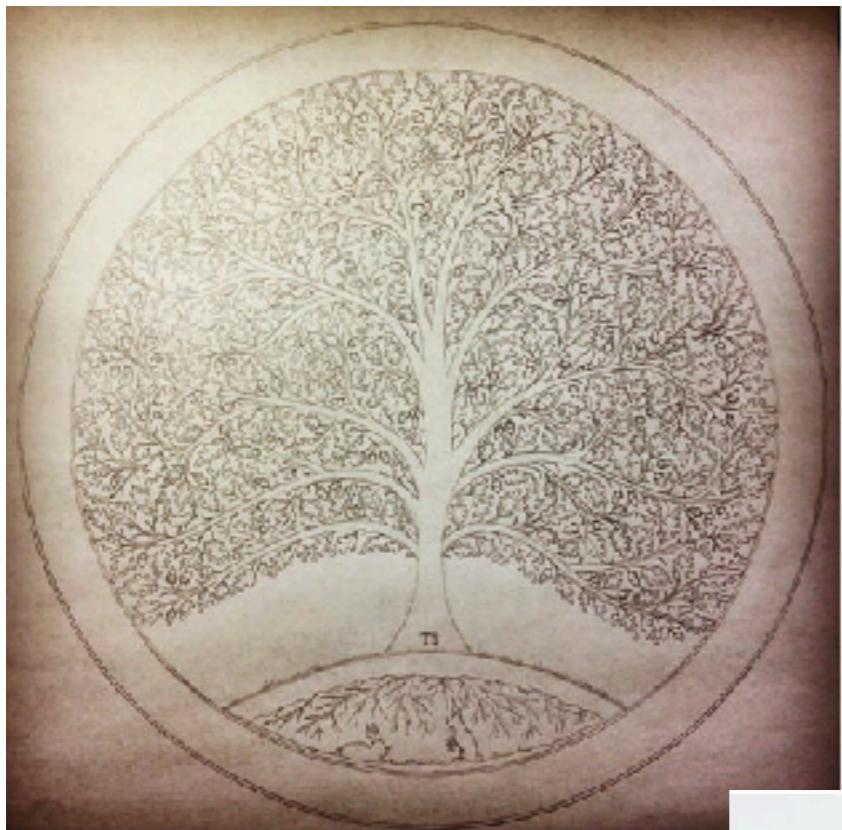


Mexican



Polish

How it's traditionally done



Paper Cutting Machines (Craft Cutters)



Cricut Maker



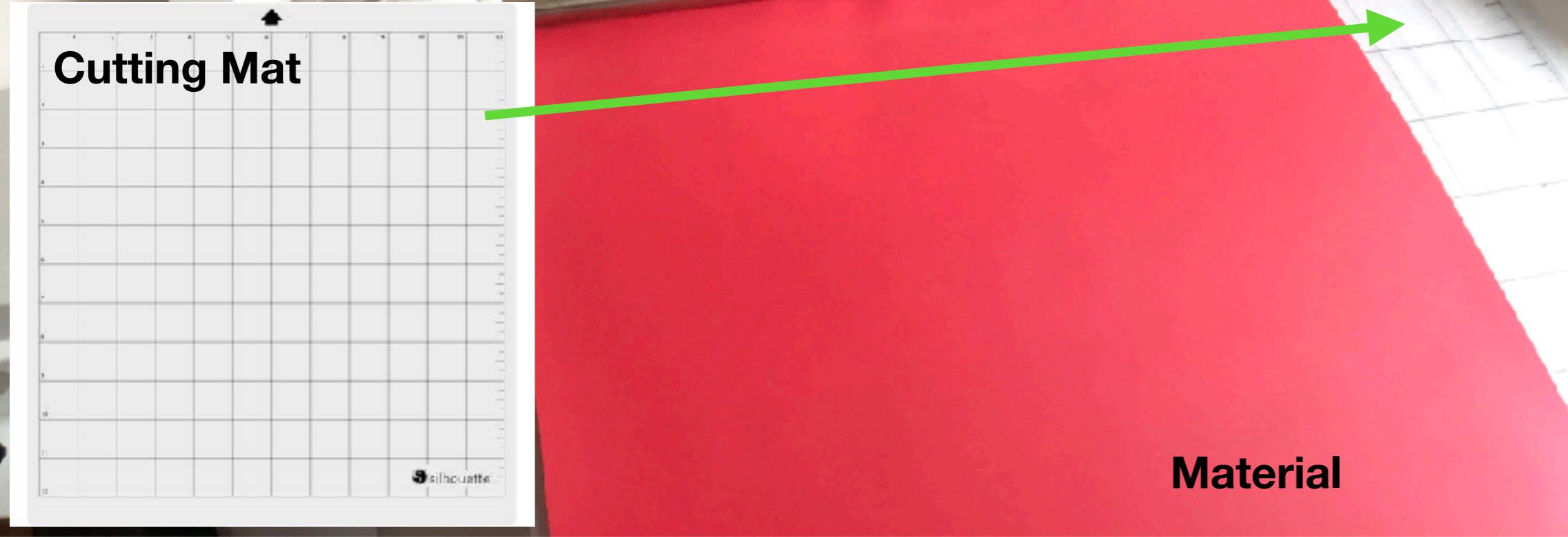
Silhouette Cameo

Components

Machine itself



Cutting Mat

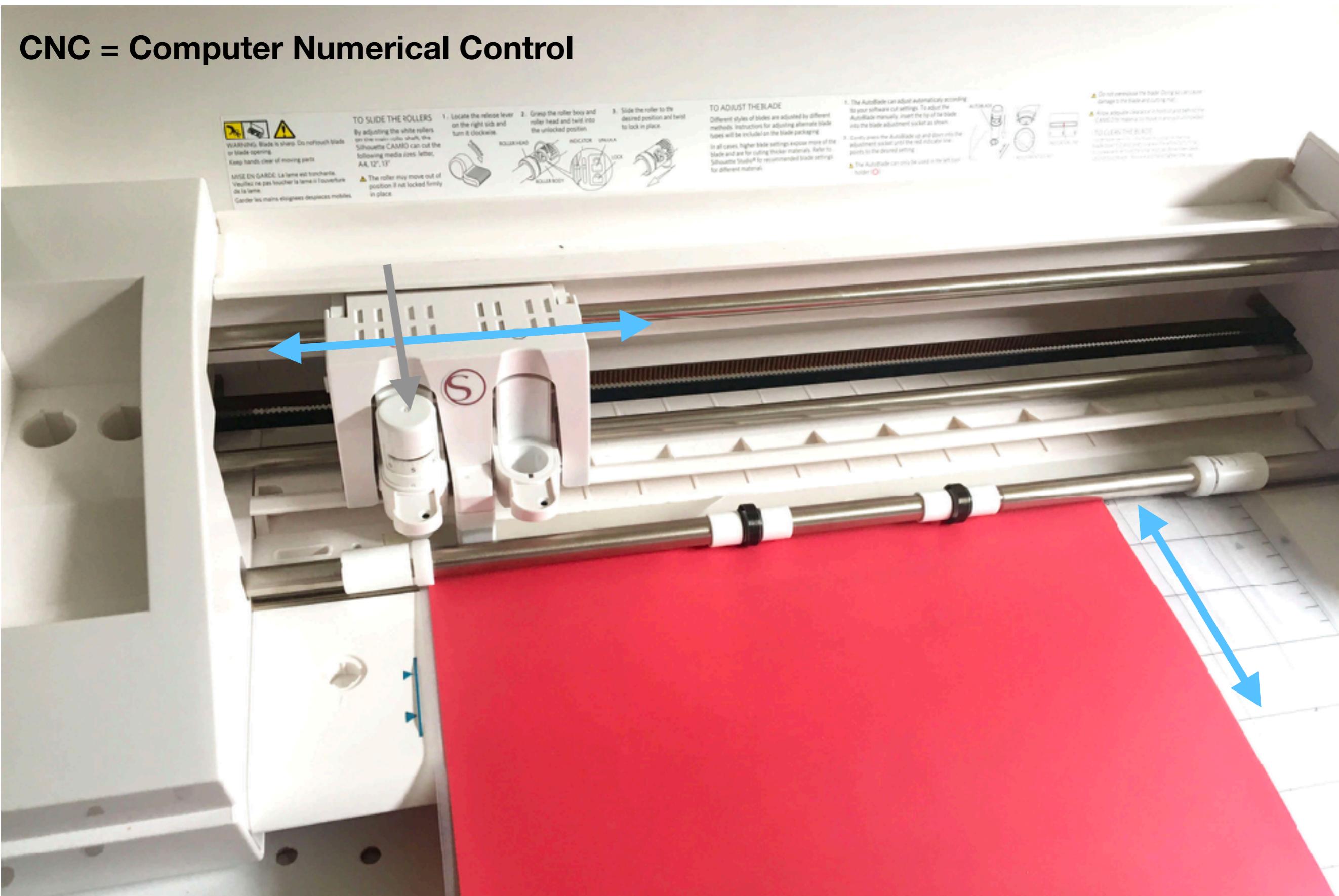


Drag knife



How does it work?

CNC = Computer Numerical Control



Low level Cuts

GPGL: Graphtec Plotter Graphics Language

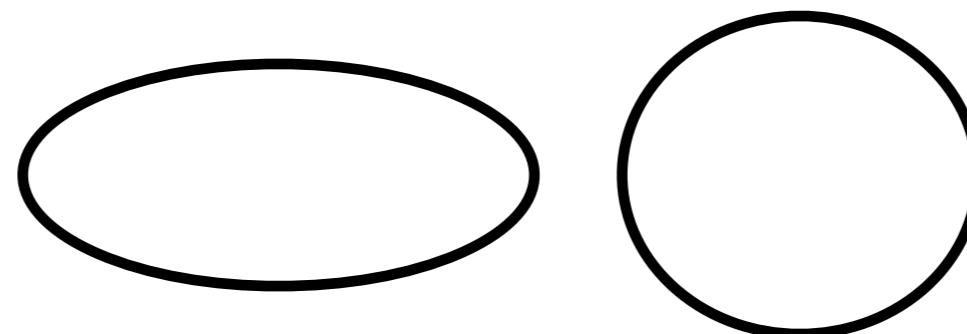
- **Move (Mx,y)**

Full GPGL Spec: <https://www.ohthehugemanatee.net/uploads/2011/07/GP-GL.pdf>

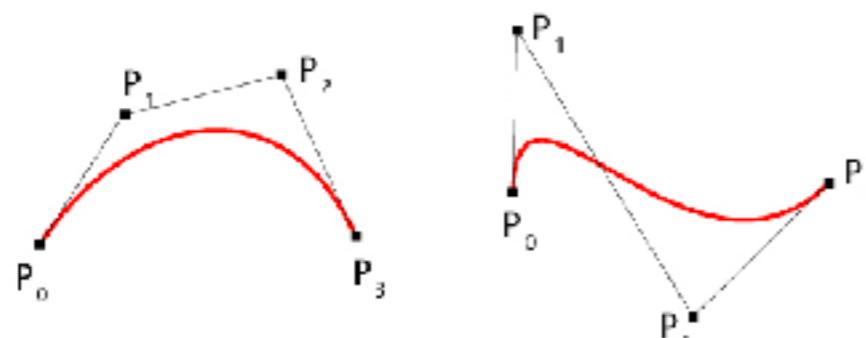
- **Cut Line (Dx,y)**



- **Circle (WPx1,y1,x2,y2,x3,x3) & Ellipse**



- **Bezier Curve (BZx1,y1,x2,y2,x3,y3,x4,y4)**

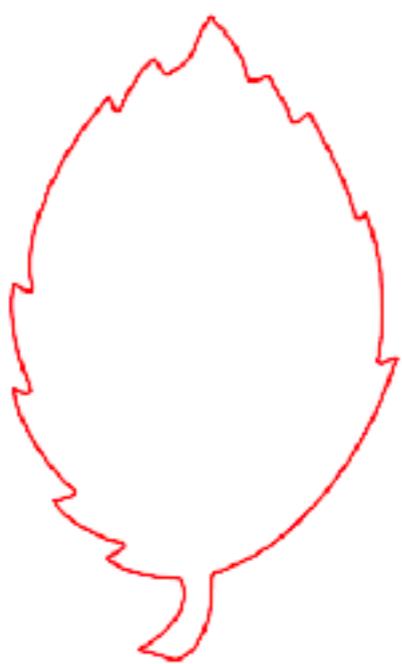
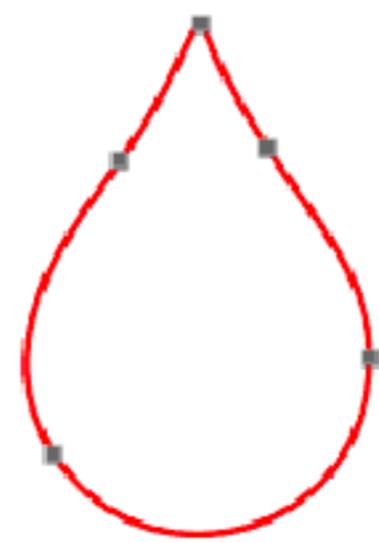


Mid Level Cuts

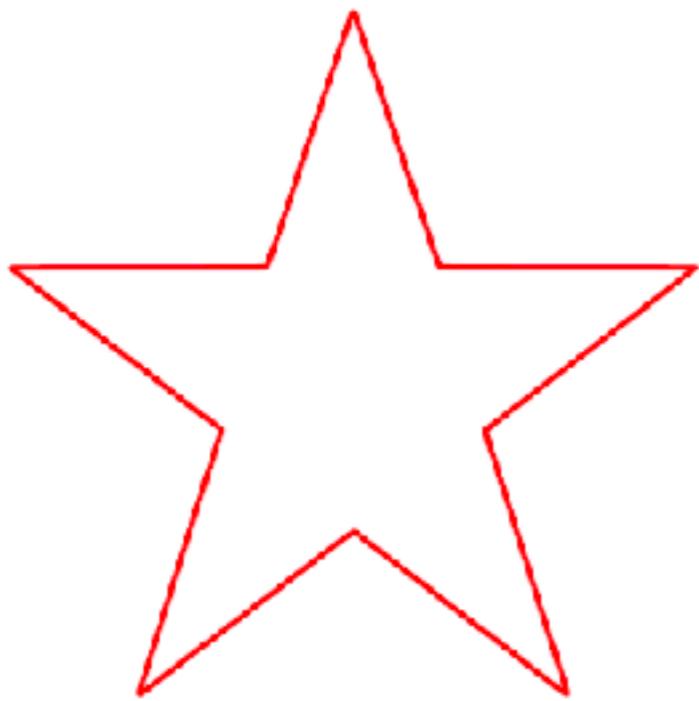
1. Paths

2. Corners

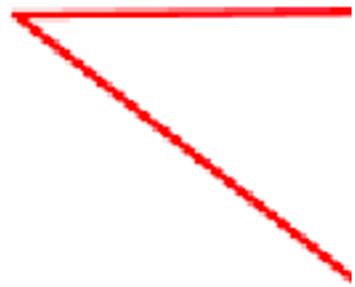
Path



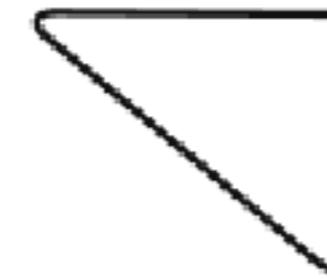
Corner



Blade Pivots

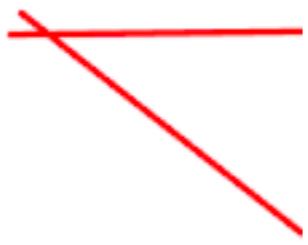


Normal Cut

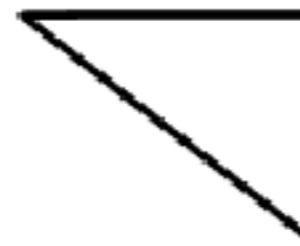


**Result: rounded corners or
tears in material**

Blade Lifts

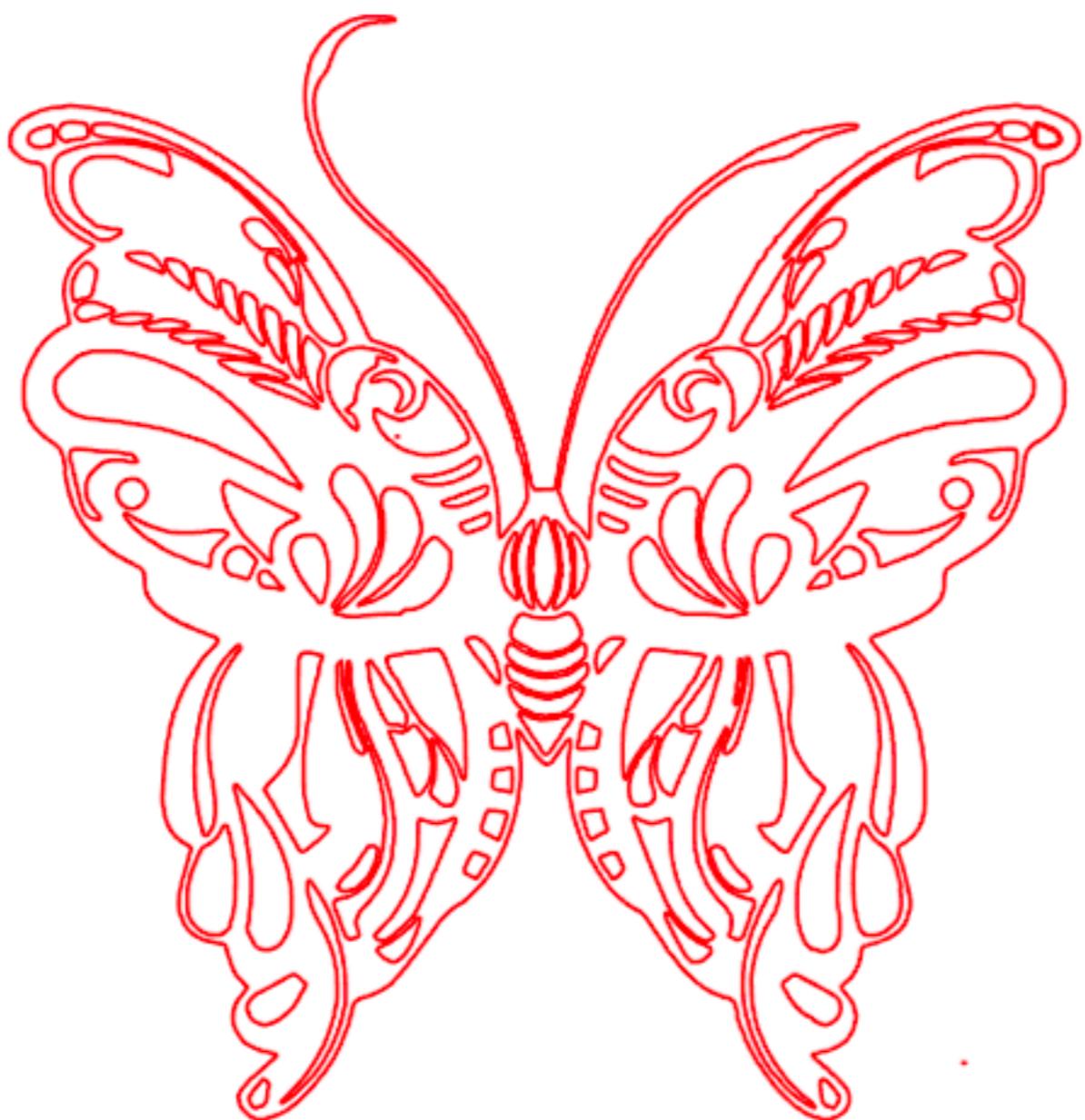


Over Cut



Result: sharp corners!

High Level Cut: The Design



Several midlevel components.

- **What order of components?**
- **For each component, which direction?**
- **More complex questions:**
 - **Can you and when should you break up all paths?**
 - **Etc.**

Other Considerations

- Blade depth
- Speed
- Force

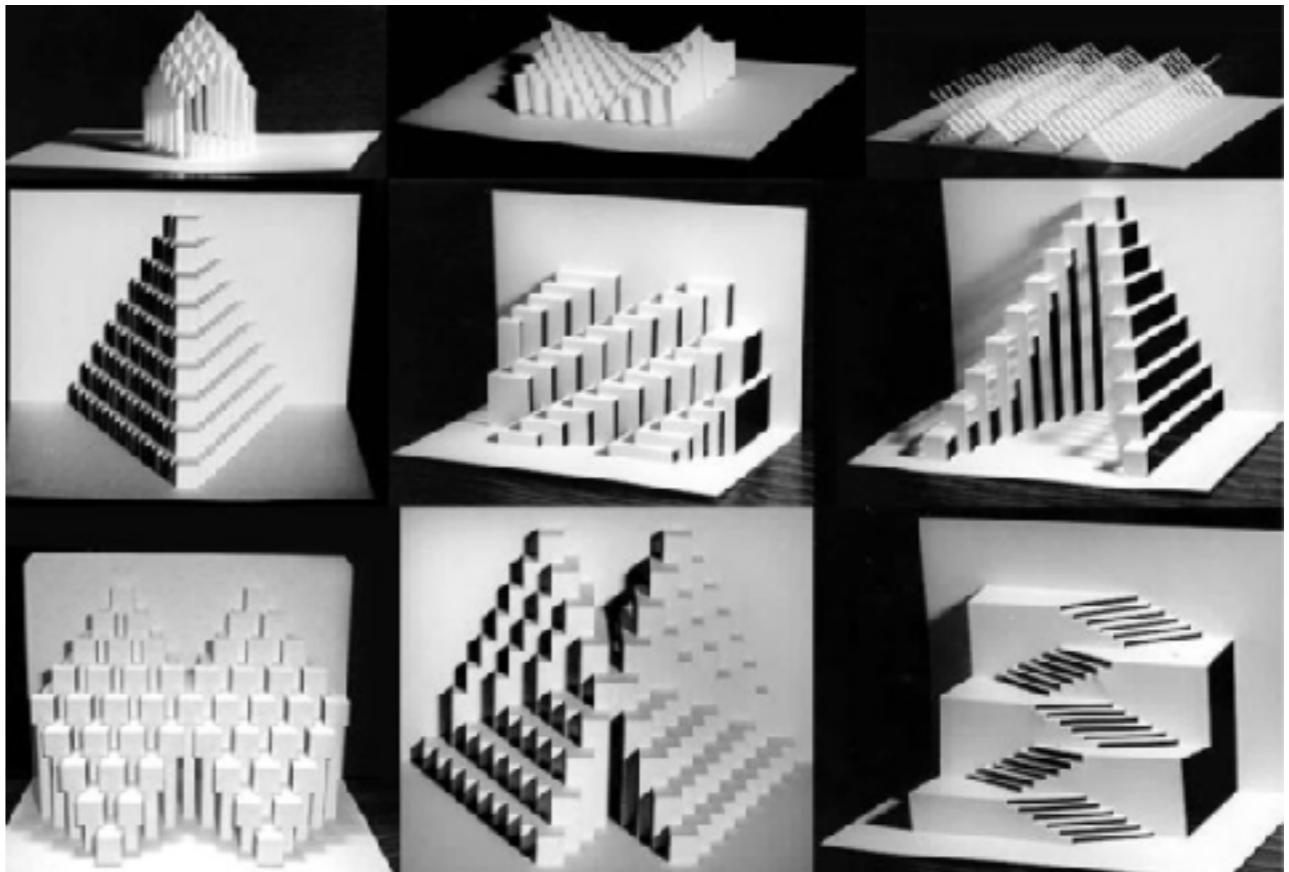
Think about your material!!

Assignment 1

- NOT using commercial/ black box software
- Two open source tools for cutting with the Cameo
 - Input: SVG → Output: paper cut art
- Choose one, both, create your own, or find more open source tools
- Look at the code - tell us what decisions the tool makes and why

Demo

Inspiration



Announcements

- Assignment 0: How Things are Made
- Assignment 1: Make Something!
- Office hours for getting started on the machines:
 - Anh: today, 2:30-3:30 (get started with paper cutter)
 - Pat: tomorrow, 1PM (get started with embroidery)
 - Anh: Monday, 3PM (get started with paper cutter)