

Custom Cuts - Intro to the Vinyl Cutter

Specialized tools/technology used:	Experience level suggested:
Laser cutter, vinyl cutter	beginner/intermediate
2D modeling program (e.g. Gravit design tool)	beginner/intermediate
3D modeling program (e.g. Tinkercad)	beginner/intermediate

Grade Level (of this example): 3-12

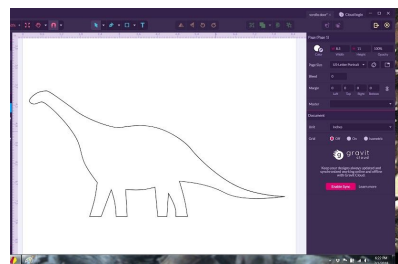
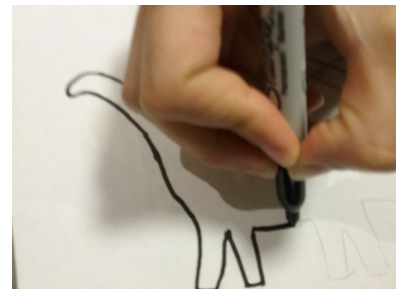
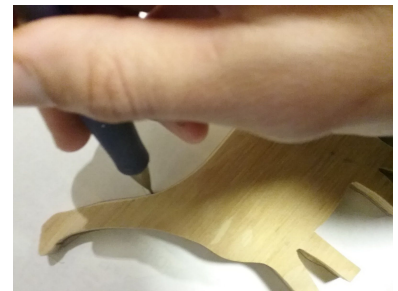
Content Standards: See below for possible content explorations

Summary of Project: Students will find, trace, and/or design a 2D image that represents something significant to them personally, to the content, or both.

At its simplest, this activity can be the students' first encounter with the vinyl cutter, even bypassing the design stage by converting a found image to svg with PicSvg.com. However, there are many ways that designing an original or modified image making can support content learning - please see below.

Images at right, top to bottom: image is **(1)** drawn - in this case, hand-traced from a found object, **(2)** darkened, **(3)** photographed, uploaded to Gravit, traced over with vector tools and exported to an svg, and **(4)** cut out by the vinyl cutter. This process alone is likely to take 60-90 minutes for a beginner, depending on the complexity of the image and the focus/dexterity of the student.

Hand tracing or creating an image in Gravit does not require physical drawing first, but hand drawing will likely help beginners form their thoughts and get the hang of things.





Possible Content Explorations:

Social studies:

- **mass communication and/or propaganda** - how do printed images influence the growth and social movements? How do different groups use and reuse images to give them new meaning and oppose other groups? Important study periods could include WWII, Vietnam War, UFW protests, emergence of hip hop culture, modern internet memes, etc.
Resource: [The Public Studio website](#) on nuts and bolts of spray paint stencilling, as well as food for thought about mass communication and image-based messages.
- **Kara Walker, racial representation, and stencils:** Compared to other art forms, what do stencils show (and NOT show?) How does Walker use stencil art to reflect the African American experience? Why is her art controversial? How can you use stencil-based art to tell a story?
More lesson resources about Kara Walker:
[Unit on the art of Kara Walker from Maryland Public Schools](#), High School
[Narrative Silhouettes lessons](#) from Davis Art, Elementary and High School
[Background and discussion questions](#) from Camden Arts Centre, High School
- **Islamic art** - significance of Islamic art, relation to Islamic innovations in math
Extra tech suggested: Turtle Art - this free program allows students to easily generate geometric patterns, and Turtle drawings can be easily exported to .svg files.

ELA / Social Studies

- **character logo design** - design a logo for a figure or social group in history, modern society, or a work of literature
- **community logo design** - offer logo design and screen printing services for a group that has community ties to a student or to the school. Can tie in with exploratory chemistry project (below)
- **motifs in a work of literature** - choose/create symbol of character or important theme
- design and cut **shadow puppets** - use them to write and perform a play, or reenact favorite stories, or important historical events.
 - Use puppets in improv-based warm up: "What would _____ do if..." - students each choose a puppet and act out what it would do in a given situation based on puppet's character traits or historically documented acts. Students can suggest scenarios and draw them from a hat.
 - Study societies in which shadow puppets are an important art form



STEM - Engineering/Chemistry:

- **Design a process** for dyeing or marking an object with the aid of a cut stencil
- **Explore the physical properties** of different objects and liquid colors by attempting to paint or dye them with cut stencils made from vinyl, plastic, paper, etc. - prepare a comparison infographic

Suggested Resources:

- [“Silhouette Tutorial”](#) - Silhouette School Blog
- [“Use a Vinyl Cutter to Design Stencils for Spray Painting”](#) - Make Magazine