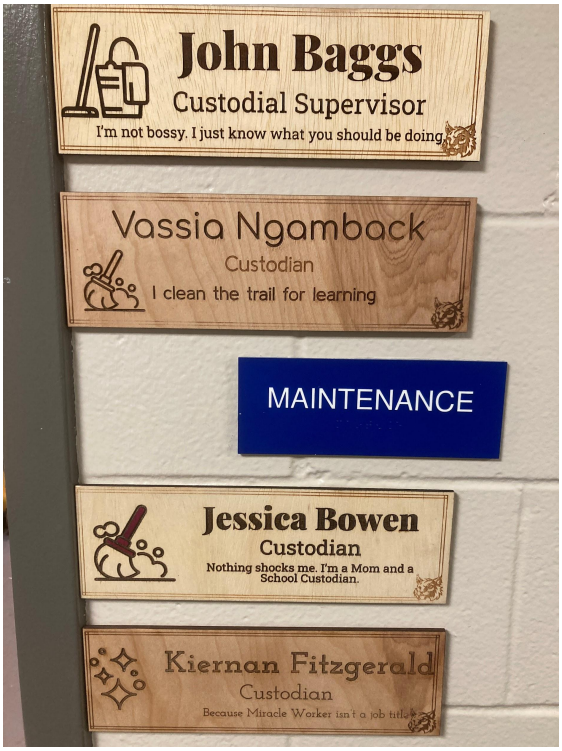
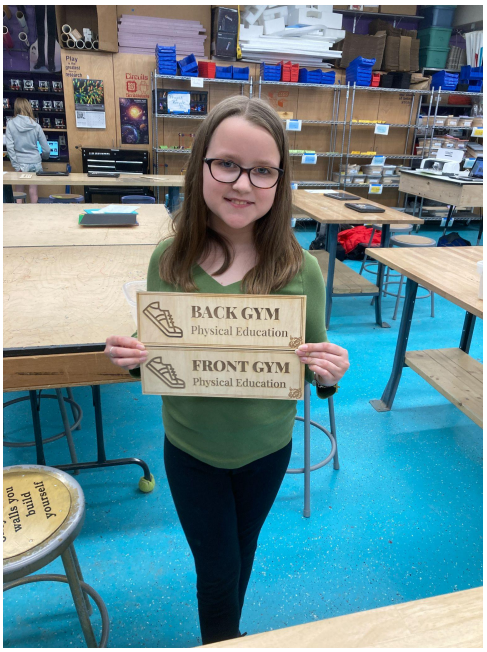
Using the glowforge lasercutter to create personalized signs for ourselves and for teachers



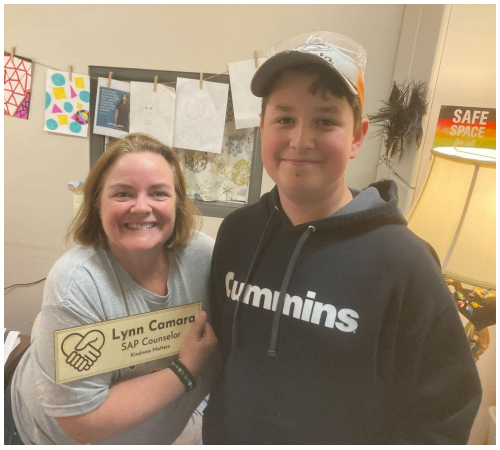
Grade level(s) I use: I have successfully used the glowforge and Google Slides for design with students as young as 3rd grade, and the product is so satisfying that it is a great project even through high school or for adults.

Lesson Overview: - if you have looked at the STEAM Team Service Learning project .pdf on the STEM4Learning Projects page (https://www.stem4learning.com/projects) then you've already read about how powerful this project was for our school. The key here wasn't really the tool but the power of making for a service learning purpose. Just last week a teacher from another school popped into our Creation Studio after school saying how encouraging it was to see cohesive personalized signs around the school sharing not only teachers' identities but, even more importantly, our maintenance and custodial staff, putting them on the same level as the teachers and administration. Just as important as the creation of the product was the process, having students create a cohesive set of design elements, prototype and share several ideas for the overall layout and design, and then interview teachers individually so as to provide their "client" with a product that truly represented the image and message they wanted to share outside their office or classroom. With that background work completed, the actual sign creation was quick and simple.



For time saving we designed an overall template, which I cut on our larger format Epilogue 60W lasercutter at the Generator Makerspace. Although the entire project could be done on our Glowforges, this cut the inschool production time significantly and helped assure the consistency we hoped to have between the various signs around the school. The students had created a set of 3 font choices for teachers as well as 3 different layouts of icons, quotes and titles for teachers to choose from using a pre-made packet to guide their interview conversations.

With the answers in hand students could quickly design each individual sign using a preset googleslide template, then download the .png image to set-up the engraving process on our Glowforges. The sign templates were 4 x 12 inches so the typical sign took about 25 minutes to engrave deeply. We didn't use any masking material so there was some burn residue from the maple or walnut ¼ inch plywood so the final step was always a light sanding before the signs were finished with two coats of spray-on Polycrylic. The signs were mounted with heavy duty velcro which so far has held up well with no student games moving or messing with them :-)



Materials and equipment I use:
Glowforge lasercutter - the original iteration of this project was an Agency of Education grant that blessed our Makerspace with 2 more Glowforge Pro's (for 3 total) - that really has opened up the possibilities of mass production even with the time-consuming engrave images we can easily create using canva, google draw or google slides.

https://shop.glowforge.com/products/glowforge-pro

¼ inch plywood - buying 12 x 24 inch sheets keep our cost down allowing 6 signs out of every board

¼ inch Birch plywood sheets:
https://www.amazon.com/Juexica-Unfinished-Projects-Engraving-Painting/dp/B0BB1GW8G6/ref=sr_1_8?crid=1E0Y6JT595TRQ&keywords=12+x+24+inch+maple+plywood+sheets&qid=1703811311&s=arts-crafts&sprefix=12+x+24+inch+maple+plywood+sheets%2Carts-crafts%2C110&sr=1-8

⅛ inch Walnut plywood sheets:
https://www.amazon.com/Plywood-Unfinished-Cutting-Engraving-Painting/dp/B0C1KBX9R7/ref=sr_1_7?crid=XS4UB6MZV4C9&keywords=12%2Bx%2B24%2Binch%2Bwalnut%2Bplywood%2Bsheets&qid=1703811378&s=arts-crafts&sprefix=12%2Bx%2B24%2Binch%2Bwalnut%2Bplywood%2Bsheets%2Carts-crafts%2C124&sr=1-7&th=1

Polycrylic spray lacquer finish:
https://www.amazon.com/Minwax-Polycrylic-366660000-Aerosol-Clear/dp/B07JJN6MZ5/ref=sr_1_12?keywords=polycrylic+clear+satin&qid=1703811574&sr=8-12

2 inch heavy duty velcro:
https://www.amazon.com/VELCRO-Brand-Adhesive-Industrial-30081/dp/B08GFB8C3B/ref=sr_1_2?crid=3LNIR0MQSRK79&keywords=2+inch+heavy+duty+velcro&qid=1703811684&sprefix=2+inch+heavy+duty+velcro%2Caps%2C120&sr=8-2

Ongoing questions and ideas for the future:

My learning from this project was simply to continually ask myself - how can I transform this “making” idea into something where my students are truly creating a product that enhances someone’s or some community’s well-being. I know it can’t happen with everything and with middle schoolers it’s important for engagement that they also are creating for themselves - but this project really feels like the “gold standard” to me - something that hit so many markers of transformational social emotional learning blended with making - that I just keep coming back to how can I do this with a broader audience. If you are reading this and have some inspiration I’d love to hear it, please drop me a note at allan@stem4learning.com