

GSLC Makerspace Guidebook

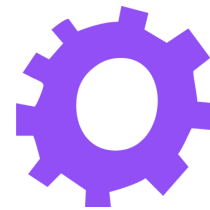


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Welcome to the GSLC Makerspace!



Thank you for choosing to explore and create with us. A Makerspace is a collaborative, hands-on environment where Girl Scouts can design, build, and experiment. Here, we encourage creativity, innovation, and learning through making—whether you're crafting something new, solving a challenge, or discovering your unique talents.

For Girl Scouts, the Makerspace is an essential space to foster curiosity, teamwork, and problem-solving skills. It provides the perfect opportunity to bring ideas to life, empowering them to learn, grow, and build confidence as they explore the exciting world of STEM and beyond. We're excited to see what you'll create!

Makerspace Rules

1. Use Resources Wisely: Be mindful of materials and tools. Only take what you need to ensure all Girl Scouts have the opportunity to use this space.
2. Respect Others and Their Work: Always be considerate of fellow makers. Share tools and workspace, and encourage a positive, supportive environment for everyone.
3. Safety First: Always follow safety instructions when using tools and equipment. Never use tools or machines without proper training.
4. Keep the Space Clean: After you're done, clean up your area, put tools back in their proper place, and dispose of waste responsibly.
5. Take Care of Tools and Equipment: Handle all tools with care and report any damage or malfunctions immediately to a staff member.
6. Be Creative and Experiment: The Makerspace is for learning and trying new things! Don't be afraid to experiment and explore different techniques.
7. Share Your Ideas: Collaboration and sharing ideas help everyone grow. Discuss your projects, offer feedback, and learn from others.



Is the Makerspace really FREE?

YES! The Makerspace is a free resource for troops. We hope to keep it that way for many years, so please [use resources wisely](#). Only take what you need and support the program by completing the below steps.

Your Feedback Keeps this Program Going!

Your feedback truly impacts the future of this program. We will continue to change, grow, and expand based on the feedback we receive from Girl Scouts and Adults.



Is Something Broken or Missing?

Keep our team aware of broken, missing, or low-stock items so we can best support the Makerspace and other Girl Scouts visiting.

How to Donate to the Makerspace:

Do you want to give back to the Makerspace? Did your troop use an excess of a material you would like to replace? Check out our Amazon Wishlist. 100% of the items purchased go into the Makerspace. Interested in donating something else? Please email program@girlscoutsoc.org.



Available Makerspace Tools

There are so many available tools, resources, and machines available to you at the Makerspace. Some of these tools include...

Cricut Machine

Heat Press

3D Printer

Chomp Saw

DIY Bins

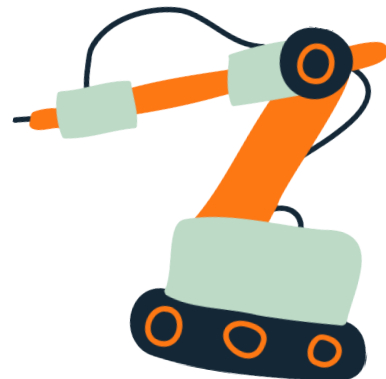
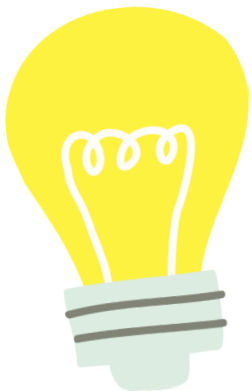
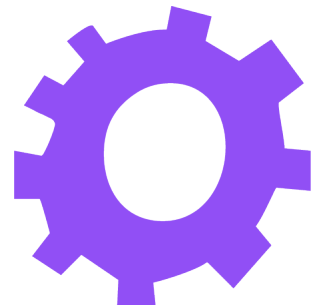
Lego

Paints

Dozens of Creative Supplies

& More!

Learn more about them on pages 6-9



Cricut & Heat Press



What is a Cricut & Heat Press?

The Cricut is an electronic cutting machine that allows you to cut materials into anything you dream! It is a smart “robot” that follows digital designs, created by YOU! We are also lucky to have Cricut Design Access, where we have access to thousands of exclusive images, fonts, and ready-made projects, providing endless creative possibilities! The Heat Press is an Iron to help with iron-on projects.

In the Cricut Guidebook, you are provided with two projects.

1. Vinyl Sticker
2. Iron-On Image



The GSLC Makerspace has vinyl available, you will need to bring the item put the vinyl on to. You also may bring in your own vinyl to ensure you get a specific color. No colors are guaranteed to be available.

Sticker Vinyl Project Examples:

- water bottle
- cups/mugs
- notebook
- keychains
- door hangers or signs



Iron-On Vinyl Project Examples:

- bags
- t-shirts
- pillowcases
- bows

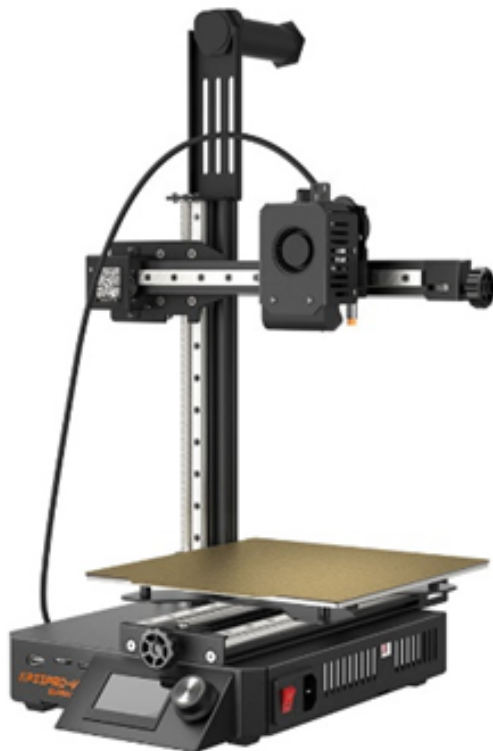


3D Printer

As of 1/1/2025, the 3D Printer is not currently available for troop use at the GSLC Makerspace. It is available at our Maker Nights!

This is because of the complexity of the machine. We are hoping to have it running for troop use soon.

If you have any questions or feedback, please email Program Manager, Amanda Moore, at amoore@girlscoutsoc.org. Thank you for your understanding!



Chomp Saw



As seen on Shark Tank in November 2024, Girl Scouts of Orange County was one of the very first backers of the Chomp Saw!

The Chomp Saw was created by college inventors who wanted to create a child-safe saw for people of all ages to build and design. This saw can cut cardboard and is child safe! The saw cannot cut fingers, catch on hair, and creates great cuts!

Check out chompshop.com for more details!

What can I do with the Chomp Saw?

Cardboard Toys

Educational Tools

Cardboard Bracelet Looms

Marble Mazes

Cardboard Pinatas (donate to OC Zoo!)

Fairy Houses

Skee-ball and other games

Cat Houses and Enrichment

You can make anything you can think up! Check out the Cardboard Engineering book in the cabinet for more ideas or online resources such as Pinterest!



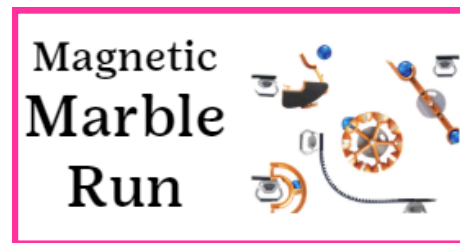
DIY Bins

The DIY Bins are packed with everything you need for endless creativity and hands-on projects! Filled with materials like pom poms, craft sticks, glue, tape, cardboard, buttons, paints, and more, these bins are perfect for bringing your ideas to life. Whether you're building, crafting, or problem-solving, the DIY Bins are ideal for engineering projects or earning badges like Create & Innovate and Think Like an Engineer. Dive in and start creating today!



Maker Discovery Boxes

The Maker Discovery Boxes are filled with exciting STEM activities designed to spark creativity and innovation! Inside each of the six boxes, you'll find materials for hands-on projects like building mazes, painting, constructing with LEGO, and much more. Perfect for young inventors, these boxes encourage exploration, problem-solving, and critical thinking while having fun. Whether you're designing, building, or creating, the Maker Discovery Boxes are your ultimate toolkit for imaginative discovery!



Badges You Can Earn at the GSLC Makerspace

Daisy:

Create & Innovate
Craft & Tinker
Board Game Design Challenge
Rollercoaster Design Challenge
Think Like an Engineer



Brownie:

Create & Innovate
Craft & Tinker
Fling Flyer Design Challenge
Think Like an Engineer



Junior:

Create & Innovate
Craft & Tinker
Paddle Boat Design Challenge
Crane Design Challenge
Think Like an Engineer



Cadette/Senior/Ambassador:

Think Like an Engineer

Check out the following pages for information about these badges and the badge booklets are provided at the end of the binder.

Daisy Badges: Create & Innovate and Craft & Tinker

Both the Craft & Tinker and Create & Innovate badges are based in “Maker” ideals and encourage creativity, innovation, and making something new or better! Both of these badges use the Design Thinking Process (found inside the Maker Cabinet or on page 17). Ensure you talk about the Design Thinking Process when introducing the badge.

For the Craft and Tinker badge, you can create any Maker project! This could be guided or open for Girl Scout exploration. Ideas for projects are listed in this binder and on the Maker Idea Cards in the Maker Cabinet. Follow the Design Thinking Process and don’t forget to share when you are done!

To start the Create and Innovate badge, brainstorm ways you could make something to solve a problem. Can you think of something you can make for someone else? Maybe a birdhouse? A toy for a dog at the animal shelter? Use the resources at the Makerspace to create something new. Using the Design Thinking Process, always find way to improve your design. Finally, Share it with your Girl Scout friends!



Daisy Badges: Mechanical Engineering Board Game Design & Roller Coaster Design Challenge

For the Board Game Design Challenge, help the Girl Scouts make a spinner for their game and allow them to use cardstock and other Makerspace materials to make their own board game. Don’t forget to share your board game with other Girl Scouts!

In the Roller Coaster Design Challenge, you can either build a rollercoaster using the DIY Bins and Makerspace Materials or even try the buildable rollercoaster provided in the Makerspace Discovery Boxes! This project also looks at the Design Thinking Process, making a prototype, testing the rollercoaster, and making adjustments as needed. Share the rollercoaster with others when you have built it!



Brownie Badges: Create & Innovate and Craft & Tinker

Both the Craft & Tinker and Create & Innovate badges are based in “Maker” ideals and encourage creativity, innovation, and making something new or better! Both of these badges use the Design Thinking Process (found inside the Maker Cabinet or on page 17). Ensure you talk about the Design Thinking Process when introducing the badge.

For the Craft and Tinker badge, you can create any Maker project! This could be guided or open for Girl Scout exploration. Ideas for projects are listed in this binder and on the Maker Idea Cards in the Maker Cabinet. If open for exploration, you can follow the “My Maker Plan” in the badge booklet. Follow the Design Thinking Process and don’t forget to share when you are done!

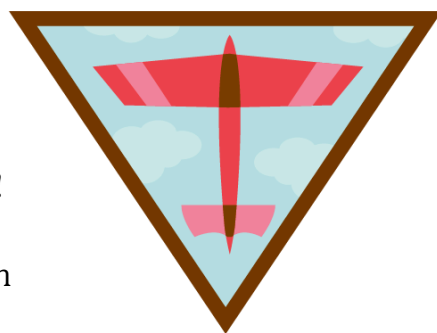
To start the Create and Innovate badge, brainstorm ways you could make something to solve a problem. Using the Design Thinking Process, always find way to improve your design. Use the resources at the Makerspace to create something new to help your community or solve a problem. Finally, Share your design with your Girl Scout friends!



Brownie Badges: Mechanical Engineering Fling Flyers Design Challenge

There are three Mechanical Engineering Badges for Brownies, but the Fling Flyers is the best for the available Makerspace supplies.

First, talk to brownies about Force and how that impacts their Fling Flyer. Then allow them to build their own Flyer! They can draw their design on scratch paper before designing. Then test your design. Keep adjusting the design using the Design Thinking Process! Don’t forget to share your Fling Flyer and see how everyone’s design is different!



Junior Badges: Create & Innovate and Craft & Tinker

Both the Craft & Tinker and Create & Innovate badges are based in “Maker” ideals and encourage creativity, innovation, and making something new or better! Both of these badges use the Design Thinking Process (found inside the Maker Cabinet or on page 17). Ensure you talk about the Design Thinking Process when introducing the badge.

For the Craft and Tinker badge, you can create any Maker project! This could be guided or open for Girl Scout exploration. Ideas for projects are listed in this binder and on the Maker Idea Cards in the Maker Cabinet. If open for exploration, you can follow the “My Maker Plan” in the badge booklet. Follow the Design Thinking Process and don’t forget to share when you are done! Dive in deeper, Juniors, using the Badge Booklet!

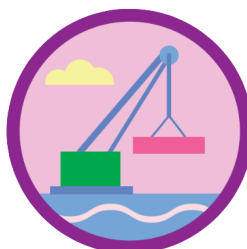
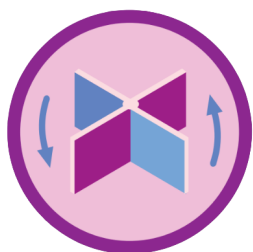
To start the Create and Innovate badge, make a community-centered design. Brainstorm how you want to help that community and what you will need to create either a draft or a prototype of your design. Use the badge booklet to find more details on project design.



Junior Badges: Mechanical Engineering Paddle Boat & Crane Design Challenge

For the Paddle Boat Design Challenge, you will build a rubber band paddle boat. Test the paddle function in a bucket of water (or the ocean if you have a Lifeguard on duty!). Check out sciencebuddies.org for more details on building a rubber band paddle boat. Don’t forget to use the Design Thinking Process!

In the Crane Design Challenge, you get to use your understanding of simple machines to design and build your own cranes. Check out the badge book for a break-down of simple machines to inspire your design.



Think Like an Engineer Badges Activities for Each Level

Daisy Design Thinking Activities: design and build a fairy house, a car powered by air, and a way to get across a canyon (bridge building).

Brownie Design Thinking Activities: design and build an assistive device, a water collection device, and a device that can launch a ball across a room.

Junior Design Thinking Activities: design and build a paper structure that can support the weight of heavy books, an emergency shelter, and a prototype of a structure that can withstand an earthquake's shaking.

Cadette Design Thinking Activities: design and build prototypes of a life vest for a dog, a model camp cabin inspired by nature, and a prosthetic leg for an elephant.

Senior Design Thinking Activities: design and build prototypes of a can holder that isn't harmful to animals, a kinetic sculpture, and an assistive device for the elderly.

Ambassador Design Thinking Activities: design and build prototypes of an animal enrichment product, a zip line course, and mobility equipment.



Other Engineering Project Ideas

- Duck boats - create a boat for a rubber duck. For an extra challenge, see how many ducks you can fit on a boat.
- Design a bridge - design a bridge using Lego, or paper and tape, or spaghetti!
- Corgi life vest - using a soda can (with a corgi face), create a life vest to help it stay afloat in the water.
- Design new equipment for a playground - is it a slide? swings? Get creative and build something new.

All of these projects can use “found” or repurposed materials. These materials are available at the GSLC Makerspace! Get creative!

Multi-Level Troops

For Daisy, Brownie, and Junior troops my recommendation would be choosing a single (or differentiated) Maker projects and earning the Craft and Tinker Badge. By introducing the Design Thinking Process and following that process for the project, Girl Scouts will earn the badge in all three levels.

You can choose an activity for all levels to do at the same time, differentiate based on levels, or use the Maker Inspiration Cards, or allow them to make something to help their community. If you want to focus more on function and making purposeful projects, you can also look at the Create and Innovate badge. That badge does have more steps than the Craft and Tinker badge.

For multi-level troops that want to earn a badge across more levels (Cadette, Senior, Ambassador), the best choice is the Think Like an Engineer Journey. For the journey, across all levels, you must complete three Engineering challenges. Each level has specific Engineering Projects





The Design Thinking Process

Used by engineers, inventors, and other problem solvers, the design process is a series of steps that help people think creatively and come up with solutions.

Question

Ask, what is the problem & how can I solve it?



Brainstorm

Imagine, draw, and discuss possible solutions to the problem.



Plan & Design

How do you start? What will you need? What will it look like?



Build & Create



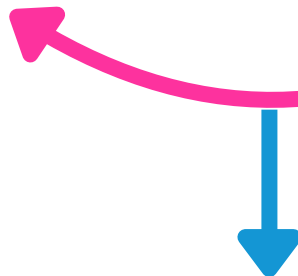
Test & Evaluate

Does the model or solution solve the problem?



Reflect & Improve

Make changes to your design.



Share Solutions

Share the final results and project with others!