



Make It Green

Build a Sustainable House
Inside and Out





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Our partnership with Girl Scout councils embodies the best in collaboration. We have shared resources and learned so much from teaming up on this project. Together we worked to inspire girls to change the world through engineering and science.



Make It Green Table of Contents

Make It Green: Suggested Schedule	2
Make It Green: Alternative Schedules	3
Make It Green: Introduction	4
Girl Scout Leadership Experience.....	7
Leader Tips	8
Parent Resource Handout.....	11
Planning a Role Model Visit	12
Make It Green: Materials.....	13
Ecological Footprint	16
Green Design Overview	20
What Green Material Am I?.....	23
Green House Link-Up.....	30
Green Construction Mix & Match	35
Green Room Planning.....	41
Green Room Building: Walls, Floors, and Insulation	45
I Spy Something Green	47
Green Room Building: Interior Design	49
I'm Building a Green House.....	52
Green Room Building: Exterior Design	53
Your Career Card	56
Who Would I Hire?.....	58
TAGD Certification.....	63



About Techbridge

“Boring, nerdy, and only for boys.” Some girls may think of engineering in those terms, but not the girls participating in Techbridge. They say, “I learned that this science thing is very fun and educational at the same time. I LOVE IT!” and “I learned that engineering is not just for men.”

Techbridge is a leader in providing girls with firsthand experience working as engineers—from designing toys and building turbines, to meeting professional engineers who help make the world a better place.

Techbridge brings together best practices and lessons learned for partners and offers curriculum that builds on girls’ interests and expands their career options. We have seen first-hand the impact that role model visits and field trips can have. We offer training and resources to youth-serving adults to create positive experiences for girls.

The Techbridge program reaches out to girls in under-served communities and offers after-school and summer programs with hands-on projects and career exploration. Techbridge has served over 3,000 girls in elementary, middle, and high schools in Oakland, California and surrounding communities since its start in 2000. The program has been shown to increase girls’ confidence, build skills, and promote interest in careers in engineering, science, and technology.

In order to bring a Techbridge experience to girls across the country, we are partnering with Girl Scout councils. The Techbridge team has developed programs-in-a-box that include all the activities and materials you will need to introduce girls to the wonders of engineering and science. The Girls Go Techbridge program-in-a-box includes the leader guide you have in your hands, and the box of materials in front of you, ready for a group of ten girls to dive in and enjoy.

We invite you to partner with us to bring engineering and science to girls in your community. Together we can inspire a girl to change the world.

For more information, visit www.techbridgegirls.org.

Make It Green: Suggested Schedule

Time	Session 1	Session 2	Session 3	Session 4	Session 5
:00	Pre-Surveys (if applicable)	Icebreaker: Green Construction Mix & Match	Activity: I Spy Something Green	Icebreaker: I'm Building a Green House	Career Activity: Who Would I Hire?
:10	Icebreaker: Ecological Footprint				
:20		Activity: Green Room Planning			
:30	Activity: Green Design Overview		Activity: Green Room Building: Interior Design		
:40	Activity: What Green Material Am I?				
:50		Activity: Green Room Building: Walls, Floors and Insulation		Activity: Green Room Building: Exterior Design	Activity: TAGD Certification
1:00					
1:10	Career Activity: Green House				
1:20	Link-Up				Post-Surveys
1:30				Career Activity: Your Career Card	
1:40					

Make It Green: Alternative Schedules

	6.5 Hours	4.5 Hours
:00	Icebreaker: Ecological Footprint	
:10		Activity: What Green Material Am I?
:20	Activity: Green Design Overview	
:30	Activity: What Green Material Am I?	Activity: Green Construction Mix & Match
:40		
:50		
1:00	Activity: Green Construction Mix & Match	Activity: Green Room Planning
1:10		
1:20	Career Activity: Green House Link-Up	
1:30		Activity: Green Room Building: Walls, Floors and Insulation
1:40		
1:50	Activity: Green Room Planning	
2:00		
2:10		
2:20	Activity: Green Room Building: Walls, Floors and Insulation	Activity: Green Room Building: Interior Design
2:30		
2:40		
2:50		
3:00		
3:10		Activity: Green Room Building: Exterior Design
3:20	Activity: Green Room Building: Interior Design	
3:30		
3:40		
3:50		Activity: Labeling and TAGD Certification
4:00		
4:10		
4:20	Lunch	Career Activity: Who Would I Hire?
4:30		
4:40		
4:50		
5:00		
5:10	Activity: Green Room Building: Exterior Design	
5:20		
5:30		
5:40		
5:50		
6:00		
6:10	Activity: Labeling and TAGD Certification	
6:20		
6:30		

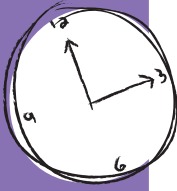
Make It Green: Introduction

5 Sessions

1 hour and 30 minutes each

Skills:

- Brainstorming
- Communication
- Teamwork
- Critical & Creative Thinking



The Make It Green program-in-a-box provides an opportunity to learn about how our choices affect the Earth and what can be done to lessen our impact on the environment.

The main activity focuses on green building design and the question, "How can we make homes more environmentally friendly?" This program introduces the concept of "green" and includes activities that emphasize energy conservation and material reuse.

Please be aware that the cause and effects of environment and pollution are complex issues and this program does not aim to provide

perfect solutions to them. The goal of this program is to make girls aware of environmental concerns and to get them thinking scientifically about possible ways to alleviate these problems. Throughout this project, emphasize ways to alleviate environmental concerns that may come up.

Designing and Building the Green House

Each girl will be responsible for designing and building one room of a house out of shoeboxes and assorted materials. The main steps of the program are as follows:

- Learn about green design techniques
- Get a room assignment and map out the layout of the whole house
- Plan out how the room will be green
- Decorate the room using recyclable materials
- Label the green design techniques in the room
- Have the room green-certified

Make It Green Overview

The Make It Green program consists of icebreakers, career activities, and hands-on activities that stress human impact on the environment and the current strategies people implement to reduce this impact.

There are three parts in this program-in-a-box:

Icebreaker Activities—activities that focus on tips for making our everyday lives green. Use them to get girls engaged and interacting with each other.

Hands-on Activities—activities that simulate advances in engineering and construction to become more green. Each of these activities must be done in sequence. Each activity builds on the concepts in the previous activities.

Career Activities—by virtually meeting the six women professionals, the girls focus on future opportunities and become exposed to new careers in the area of green design. Be sure your girls read about the women featured in their portfolio (these are the same women on the career cards).

Make It Green: Introduction

We encourage you to take the girls on field trips or have role models visit your program. Role models can enhance your girls' interest and curiosity in careers they may never have considered before. Information on how to plan a role model visit can be found on page twelve.

Project Materials

This project uses many materials. Shoeboxes are used for the rooms. These are not included in the box, so make sure you have one shoebox for every girl. Many shoe stores will save their shoeboxes if you call in advance. You can also have the girls each bring a shoebox.

Some decorating materials are provided with the boxes, but this project has the most impact when you can reuse recycled materials to decorate the green houses. Fabric and wallpaper stores sometimes have sample books they can donate. Search the internet to find a reuse store near you that might carry items for the green rooms. Again, the easiest way to obtain materials might be to have girls bring what they can from home. Clean bottles, packaging, and scraps can be creatively repurposed for the girls' green rooms.

Background Information

Being "green" means being conscious of the impact you have on the Earth while trying to leave a smaller footprint on the environment. In the field of construction and building design, the term "green" is used in the same way.

Green materials are often made of renewable rather than nonrenewable resources. They may have less of an impact on the environment because they do not require raw materials to be extracted from the Earth (which can cause habitat destruction and pollution) or they are grown in an environmentally friendly manner. Recycled or salvaged materials are also considered green because they reduce waste.

Green construction practices are used to minimize the amount of resources used, increase energy efficiency, and decrease water consumption in the building.

Criteria for Green Design:

Water Conservation

- Reduce water consumption
- Reduce pollutants that can contaminate water resources

Energy Conservation

- Use materials and/or devices that help reduce the consumption of energy

The girl portfolio is used throughout Sessions 1-5. You can ask the girls if they would like to take them home or have you collect and keep them between sessions.



Make It Green: Introduction

Green Materials

- Use recycled, salvaged, or remanufactured materials
- Use plentiful and natural materials
- Use materials that produce few pollutants
- Use locally available materials

Engineering Design Process

The Techbridge **Engineering Design Process** is a never-ending cycle of creativity. With each of the hands-on activities in this guide, we encourage you to lead girls to identify and talk about where they are in the design cycle. Growing awareness of the design process helps girls strengthen their outcomes, whether it be a hand-made product or a presentation in front of a group.

The design process encourages girls to both “try, try again” and recognize that “two heads are better than one.” Engineers, and everyone from kids to professionals, use these steps to reach their desired result. We knew this was an effective tool when one Girl Scout remarked that she used the **Engineering Design Process** when writing and revising a paper for English class, and to persuade her parents to get a later curfew!

As the leader, you’ll have to know when it’s time to stop, but the more opportunities you allow girls to reflect, redesign, and repeat the design process steps, the better the experience for all.

