

Daisies Who Build



Everywhere you go, there are so many buildings, big and small, all around you! But how exactly does a building get...well...built? Many people work together to construct each building that you see—and there are so many different jobs in the construction industry! First a building has to be designed, then supplies are purchased, and then a construction plan is created! After all of those tasks are completed, you have to ensure that you can *safely* construct your dream building!



Developed in partnership with



Steps:

1. Design
2. Tool Safety
3. Trades

Purpose:

When I have earned this badge, I will understand the steps of the construction process, different construction careers, and how I can build something on my own!

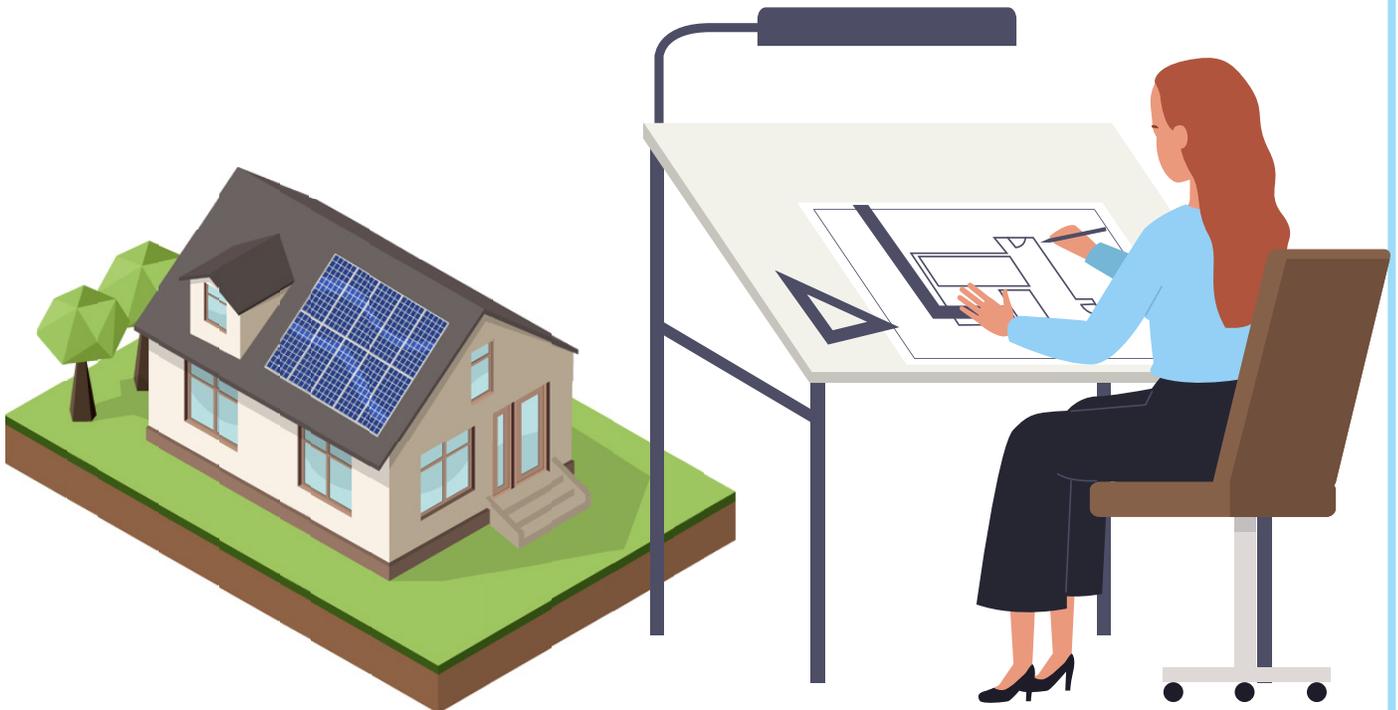
Before you begin: Do some reading together (**see page 10**).

Step 1: Design

Design is the *very first step* in the construction process because building something requires you to have a plan. A design shows the most important parts of the construction, like how tall and wide the building will be. A design can showcase the construction's creative elements too, like what a building looks like from the outside or what color the walls should be painted.



You can show off your design by creating a **model**! A model can be anything that lays out parts of the design, like where things go, or what they look like. Many designers use computer programs to make digital models of their buildings. **2D** (two-dimensional) models are often made flat on paper, and **3D** (three-dimensional) models are miniature versions of the real design.



Activity

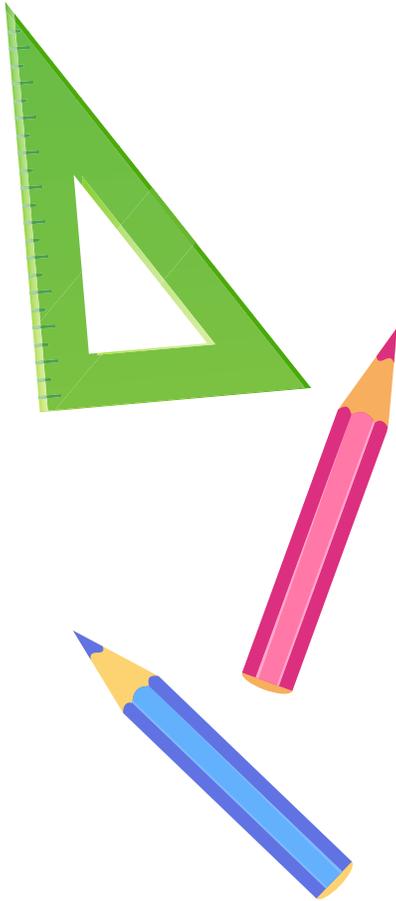
Choices – do one:

Hands-on design.

Work together with your group to design a building using Lincoln Logs, wood blocks, magnetic tiles, Playstix, Duplo, Lego, marshmallows, and toothpicks or other construction toys. You can design a building you already know, or a building that you are making up for the first time. When you're done, tell a buddy all about your design. You can even put your buildings together to make a community!

Make a 2D model.

If two-dimensional designing is more your style, gather some paper and crayons. You can design a building you already know, or a building that you are making up for the first time. Use different colors to customize your design or to show the texture of your building materials, for example: use red rectangles to represent bricks. When you're done, tell a buddy all about your design.



Step 2: Tool Safety

Construction workers always have safety in mind. When you imagine them, what are they wearing? What are they doing? Are they using a tool to help them do a job? What do you imagine a construction site looks like?

A construction project of any size can be dangerous if safety isn't the top priority. That's why construction workers wear **personal protective equipment (PPE)**, such as hard hats, gloves, goggles, boots, and high-visibility safety vests. Site safety managers help make sure that all the work on a construction site is being done on time and, most importantly, done safely. However, it's everyone's responsibility to look out for each other and make sure everyone remains unharmed. It is important to be prepared for emergencies, and construction sites make sure to have the right supplies available.



Activity

Choices – do one:

Test out tools and PPE.

Explore construction tools and safety equipment firsthand. Some tools are called power tools because they use electricity to do a job. The others are called hand tools and use a person's strength to get the job done. For safety, start with a toy set or household tools like measuring tape, pliers, screw drivers, wrenches, levels, or small hammers. Learn about and try on gear such as high-visibility vests, goggles, tool belts, and hard hats.

Research construction tools.

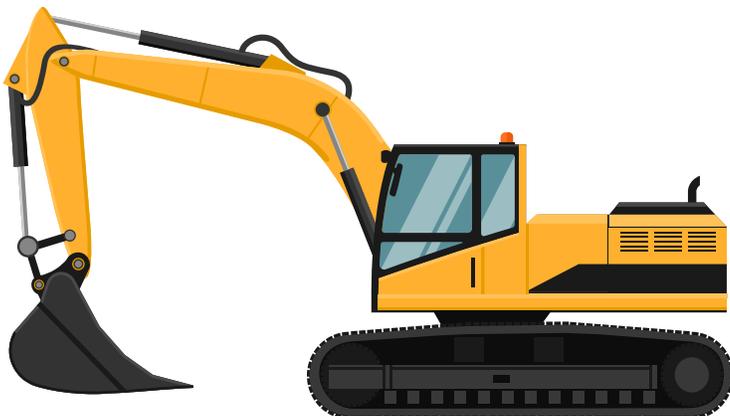
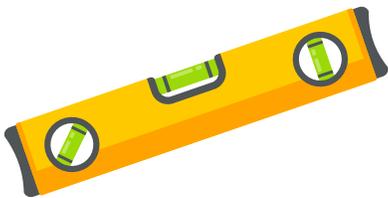
On a construction site, there are many tools used by many people— including big machines! Check out some books from the library or search the internet to find games that will help you learn about large machines used in construction and how they are used safely.

Consider books like:

Search and Find Construction by Libby Walden

I Spy Construction Vehicles by Marlies Larch

My Big Wimmelbook - At the Construction Site by Max Walther



Step 3: Trades

What are you an expert on? Is it something you learned by yourself? In school? Or maybe by helping someone else?

Tradespeople are experts with special knowledge of one part of a construction project! An electrician is just one example of a tradesperson—there are so many different skills that you can learn! For each part of a building, there is a tradesperson with special knowledge whose job it is to build and maintain it. Tradespeople use skills across the STEM principles. **STEM** stands for **S**cience, **T**echnology, **E**ngineering and **M**athematics.

Every trade works with different materials and tools. Some use a hammer and nails, some work in machines high above the ground, and some create the parts of buildings that make them beautiful!



Activity

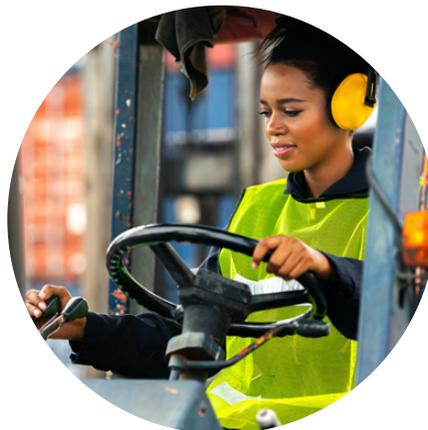
Choices – do one:

Imagine a future you.

Tradespeople are experts in a certain skill, like building something or putting something together. One day, you might consider learning a trade! Imagine a job you might have in the future. What is an activity you really like? What kind of job can use those skills or interests? Draw yourself in the future doing that job. Is what you wear to work important? How about what tools you might use? Do you use any STEM skills in this job?

Learn from an expert.

As a young person, there's so much for you to learn. Invite an adult to visit and share their career or trade with you. Before they come, prepare some questions to ask them about their job. For example, what does a normal day look like? Why did they choose this job?



When You Grow Up

Match things that you like to do with a possible career.

1. If you like building...

2. If you like climbing...

3. If you like drawing...

4. If you like planning...



PROJECT MANAGER

Project managers make sure that building projects happen on time and at the right cost.



ARCHITECT

Architects design the setup of buildings with initial sketches and 3D drawings.



CARPENTERS

Carpenters build with wood to make structures.



ROOFERS

Roofers install and repair shingle, tile, metal, and tar roofs.



Congratulations on becoming a Daisy Who Builds!

Please complete the evaluations below to provide feedback on your experience and receive verification to get your Daisies Who Build patches:



Adult Survey:
bit.ly/jwbsurvey1



Youth Survey:
bit.ly/jwbsurvey2

Thank you for your feedback.

You've earned the patch Daisies Who Build. Put your design, coordination, budgeting, and planning skills into action. For inspiration, check out more Kids Projects & Activities:

- Home Depot www.homedepot.com/c/kids
- DIY-U by Lowe's www.lowes.com/diy-projects-and-ideas/workshops
- Build Your Future www.byf.org/construction-exploration-activities-to-try-with-all-student-levels



Words to Know

Design	a detailed solution showing your ideas or intentions
Model	a physical or digital representation of the building or the idea of the building
2D	when something is flat or has just length and width, like a square
3D	when something has length, width, AND depth, like a cube
PPE	personal protective equipment; anything someone wears to keep them safe
Trade	a job with a special skill set and specific training
STEM	an acronym, or an easy way to remember science, technology, engineering and mathematics
Roofer	installs and repairs shingle, tile, metal, and tar roofs
Architect	designs the setup of buildings with initial sketches and 3D drawings
Project manager	makes sure that building projects happen on time and at the right cost
Carpenter	builds structures with wood

Books to Read Together



Look at That Building! A First Book of Structures by Scot Ritchie. Scan code or go to: [**bit.ly/book-of-structures**](https://bit.ly/book-of-structures)



This is the Construction Worker by Laura Godwin. Scan code or go to: [**bit.ly/this-is-construction-worker**](https://bit.ly/this-is-construction-worker)



How a House is Built by Gail Gibbons. Scan code or go to: [**bit.ly/how-a-house**](https://bit.ly/how-a-house)



A Girl Can Build Anything by e.E Charlton-Trujillo & Pat Zietlow Miller [**bit.ly/girl-can-build-anything**](https://bit.ly/girl-can-build-anything)



The House that She Built by Mollie Elkman & Georgia Castellano. Scan code or go to: [**bit.ly/she-built**](https://bit.ly/she-built)

Tips for Volunteers from Volunteers

Most troops spent two meetings completing this patch. If troop volunteers need more information about construction and the trades, consider reviewing some of the suggested books before starting this patch with the troop, and reach out to troop families to see if you can get external help for this topic.

If it makes sense for your group, save the building for last! Some groups found it easier to have an expert discuss their trade and share their knowledge and tools before having Girl Scouts get hands-on with building themselves. When you do get to building, other volunteers noted that having more adults to support the Girl Scouts in hands-on building was important for guidance, timing and safety. For example, if hot glue or cutting with scissors is helpful to your design process, be sure to have a volunteer to operate a gluing and cutting station.

If you choose to test out tools and PPE, your troop may have extra fun doing a photoshoot! The photos would be great to show off at an end of year party or display at a bridging ceremony to look back on all the Girl Scouts have learned and accomplished. Get creative with really exploring the items in this step. One troop had girls try stepping on steel-toed boots!

If you chose to imagine a future in the trades, feel free to switch from drawing to an activity with more movement. If they have a good understanding of the trades, then the Girl Scouts can act out scenarios, do skits, or play charades.

Your exploration of the trades with an expert may look different than another troop's. If your Girl Scouts would be more comfortable with a visitor to their space or if it works better for your schedule, see if anyone connected to the troop has experience to share or look for a local architect, builder, electrician, plumber, etc. to visit. If you are inviting a visitor to your meeting, be sure to align with them beforehand on items like timing, vocabulary, and supplies. Or if your troop might be interested in a field trip and has the time, consider going to a construction site, touring a newly built public building, or visiting a makerspace or vocational school.

Want to do more building? Consider a milk carton village or popsicle stick bridge.