

Cadette: Woodworker Badge

By: Amanda, Emily, and Queenie

Start date: 6/30/24

End date: 9/23/24



PLANNING:

[Badge Guide](#)

STEP 1: Swing a Hammer

- ☒ **Option 1:** Write your name in nails. Hammer nails into wood in the shape of the letters in your name.
- ☐ **Option 2:** Make a design with nails on wood. Hammer nails in the shape of a spiral or star, for example.
- ☐ **Option 3:** Create a sculpture. Nail together a dozen pieces of scrap lumber to make an interesting art piece.

MATERIALS: plank of wood, nails, hammers

Step 2: Keep It Level

- ☒ **Option 1:** Level up. Put four pieces of paper on a wall about an arm's length apart. Mark a dot on each and try to make sure they're level by sight. Use your tools to check if you were right.
- ☐ **Option 2:** Make it right. Using two pieces of scrap lumber, a hammer, and nails, build a level letter T.
- ☐ **Option 3:** Do a survey. Check five different spots around your house or Girl Scout meeting place to see if the structure is level and plumb. For example, use your level to check a floor, window frame, hanging picture, countertop, and porch rail.

MATERIALS: 12 sticky notes, marker, measuring tape

Step 3: Use a Screwdriver

- ☐ **Option 1:** Fix loose screws. Find at least three loose screws and tighten them. Here are a few things that often need fixing: pot handles, knobs, drawer pulls on dressers and cabinets, and door hinges. Be sure to get advice from an adult about what needs tightening-and get permission to try!
- ☐ **Option 2:** Attach it, detach it. Screw together two or more pieces of wood. Use the power drill on six screws and the hand-powered screwdriver on six more. Then take the pieces apart the same way.

- ☒ **Option 3:** Build with a screwdriver. Find a simple DIY project that requires a screwdriver, such as a bookshelf, toy, mirror, or clothes rack. Build it with help.

Step 4: Saw Some Wood

- ☐ **Option 1:** End the alphabet. Cut the letters X, Y, and Z with the miter saw and box.
- ☒ **Option 2:** Square it off. Compare the miter and the handsaw by cutting a 6" x 6" square out of a piece of plywood. First use a miter, then a handsaw.
- ☐ **Option 3:** Make a simple doll. Using the miter saw and box, cut geometric shapes to create a simple figure (like a girl or dog made of triangles, rectangles, and squares).

MATERIALS: piece of plywood, miter, handsaw, carpenter gloves, safety glasses, masks, ruler, pencil

Step 5: Build Something Yourself

- ☐ **Option 1:** Build with your expert. Ask for good project ideas and assistance from the woodworker helping you on the badge. There are many beginner plans available in magazines and online.
- ☒ **Option 2:** Build with home improvers. Find a beginner class or workshop at a local home improvement, lumber, or hardware store.
- ☒ **Option 3:** Build at a crafts store or artisan workshop. Some woodworkers teach courses in their workshops, and crafts or framing stores in your area might also offer guidance.

COURSE: Home Depot kid's workshop on the 3rd of August

PROGRESS REPORT

[Woodworker Badge Photo Album](#)

Step 1:

For step 1, we chose the first option, which was to write our names in nails. On July 13th, around 1:00 pm, the three of us met up at Home Depot to buy the materials that we needed: a piece of wood and nails. Because the original piece of wood was 8 feet long, we had a worker cut the wood into sixths in order to get the length we wanted. Afterwards, we went to Queenie's house to begin working on the step. We each had a piece of wood, and to start, we outlined our names in pencil—though Emily and Queenie gave up and went straight to nailing. Amanda and Emily nailed in the points of the letters first, while Queenie formed the letters as she went. Unfortunately, Queenie and Amanda's wood started cracking down the middle, which left some nails loose. The more they nailed, the bigger the crack grew which was very stressful. As we neared the end of the step, Amanda and Queenie had to be extra careful with each new nail. In addition, we had problems where the nail would easily bend. Removing such nails was a strenuous process (we almost broke a hammer trying to pull it out). Another problem we had was that if we weren't careful, the nail would be pushed into the wood diagonally and poke through the sides. Our last problem was that the nails were a bit too long for our wood. In other words, when we hammered our nails, they would go all the way through the wood, damaging the concrete underneath. To solve this issue, we had to use our extra pieces of wood to keep our project elevated. Although this step took extremely long (about 4 hours in total with breaks), we had so much fun and gave us an amazing opportunity to bond. However, we highly suggest investing in earmuffs if you do this because the loud noises were intolerable. To distract us from the bangs, we played Christmas music!

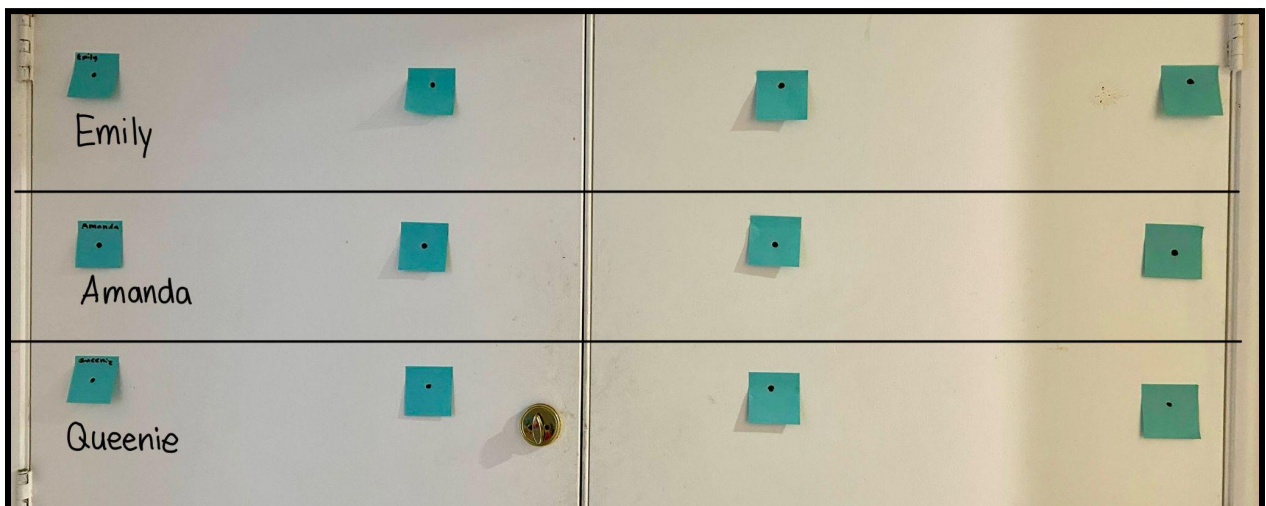


Step 2:

We chose the first option, which was to place four pieces of paper on the wall horizontally and mark a dot on each piece, trying to get the dots level—straight horizontally—by sight. On July 27th, we met up at Emily's house to do this step along with steps 3 and 4. We placed three rows of four sticky notes on the wall, one row for each person. The top row was Emily's, the middle was Amanda's, and the bottom was Queenie's. We each took turns in marking the dots. It was very tricky to do so, since the sticky notes weren't level and threw us off. Moreover, since we're all perfectionists, fighting the urge to use our arms as guides was very difficult. We found that looking at it from further away helped to level it, since it made the dots seem closer. We also had to thicken the dots that we had drawn in order for it to be seen on camera, so it might've also distorted the leveling. At the end, we took a measuring tape to figure out how high from the ground each dot was in inches, rather than horizontally in a line since there wasn't really a way for us to tell whether or not the line was level. Contrary to our predictions, we all weren't that far off from the dots being level to each other. Our results ended up being less than an inch in range.

Name	Dot #1 (in.)	Dot #2 (in.)	Dot #3 (in.)	Dot #4 (in.)	Range (distance from shortest - tallest dot)
Emily	68 $\frac{5}{8}$	67 $\frac{7}{8}$	67 $\frac{7}{8}$	67 $\frac{7}{8}$	$\frac{3}{4}$ or 0.75 inches
Amanda	57 $\frac{7}{8}$	58 $\frac{1}{8}$	58 $\frac{5}{8}$	58 $\frac{3}{8}$	$\frac{3}{4}$ or 0.75 inches
Queenie	49 $\frac{1}{8}$	49 $\frac{5}{8}$	50	49 $\frac{7}{8}$	$\frac{7}{8}$ or 0.875 inches

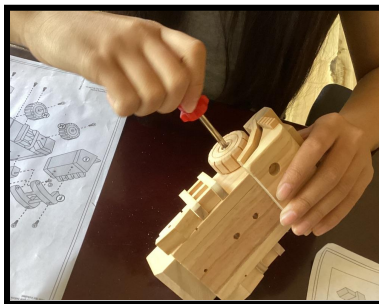
(Video of measurements can be found in the photo album)



Step 3:

For the third step, we chose option three, which was to use a screwdriver to build a DiY project. We ended up picking a toy kit which we bought from Amazon. It featured three different types of vehicles, including a tractor, a bulldozer, and a pro-race car. Each vehicle came with its own wooden components and its corresponding screws, but only had one screwdriver—luckily, Emily had a few at home; flathead screwdrivers and Phillips screwdrivers. For this step, we met up at Emily's house on July 27th at around 12:00 pm. To begin, we picked out the toy that we liked the most. Amanda picked the tractor, Emily picked the pro-race car, and Queenie picked the bulldozer. The screwing part was frankly easy, though we had messed up a few times while putting the parts together. Some of the troubles we ran into were that we screwed the piece upside-down or didn't know where to place the piece, since the instructions had no direct explanation. Eventually, we finished building our wooden toys, and then began to paint it.

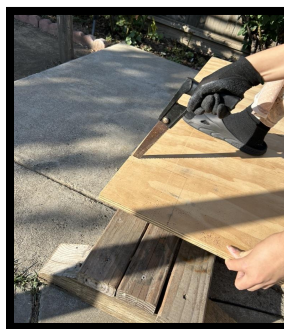
The kit had come with paints, but we decided to use Emily's paints since it had more variety. Deciding on what colors to paint our projects took excessively long since we're all very indecisive. In the end, Amanda painted her green, blue, yellow, and black, Emily painted it based on the song "Surf" by Wave to Earth, and Queenie painted hers to be Minions themed. This part was the most time consuming, since we were very intricate and perfectionistic in our process. For instance, Amanda spent a lot of time creating the "perfect" ombre for her main component. We ended up taking apart our vehicles in order to get a better grip on and view of our piece to paint. Although we had made a big mess, we could see that it was totally worth it after we finished. We had a bunch of fun doing this step.



Step 4:

For step 4, we chose the second option which was to compare the miter saw and the handsaw by cutting out two 6" x 6" squares out of plywood, one using the miter saw, and the other using the handsaw. At first, we didn't know if we could really do this step since it revolved around a miter saw, which we didn't know where to get access to one. Luckily, later, we found out that Emily's dad owned one. We met up at Emily's house on July 27th, with Amanda bringing a piece of plywood. To stay safe, we equipped carpenter gloves, a mask, and safety glasses. We started off with the handsaw, since it would be Emily's dad who would use the miter saw. Much to be expected, it was very strenuous and tedious using the handsaws. After a couple minutes of using the handsaw in an inefficient way, Emily's dad showed us the correct way to use it and helped us by elevating the piece of plywood. Because of his assistance, we now had space to saw the wood, but the soreness in our back, shoulders, and arms caused by the motion of sawing was not alleviated. As we continued on, however, we found that it was less arduous when we used both hands to saw. We also began incorporating our legs. Instead of just moving our arms back and forth, we completed the motion with our full body. The miter saw, however, was a stark contrast to the handsaw. It only took a second for the piece to cut and it wasn't strenuous at all. However, it was naturally more dangerous. It wasn't just the powerful blade that spun continuously, but also the dust that came from it. Even from about eight feet away, the dust from the wood still reached us. Thankfully, we wore glasses while watching.

The handsaw made time-consuming and brittle cuts with less of a mess, while the miter saw made quick and clean cuts, at the expense of a dusty and dangerous mess. We did have fun though, and we ended up cutting out even more pieces, which we used to make another DiY project, 2 boxes (one using a hand saw, one using a miter saw).



Step 5:

For step 5, we chose the 2nd option, which was to build with home improvers. We chose to attend a free kid's workshop at Home Depot, which is hosted on the first Saturday of every month. We registered for all of us, for the workshop on August 4th, which featured building a whiteboard. Since we registered last minute, most of the nearer locations were full. As a result, we resorted to the Hillsdale Home Depot. The workshop started at 9 am, so we tried meeting up there at that time. However, because it was far from our houses, Amanda and Queenie were late. Emily got in line to get the kits because she arrived first, and after getting the kits and hammers, met up with Amanda, and then Queenie. The tables were all full by now, so we decided that we would go home and work on it. Another reason that contributed to us just bringing the kit home was because it didn't seem like there was any worker directly providing guidance (it was mostly parents helping their kids because the kits included instructions). So, we went back to return the hammers and also got the Home Depot workshop apron. Then, we proceeded to Emily's house. The craft turned out to be smaller than we thought. It featured wooden parts, a tiny expo marker, screws, and nails, and also came with instructions, a certificate, activity paper, and a pin. We used Emily's hammers and Phillips screwdrivers.

Putting the whiteboard together was quite easy, considering its small size. However, some parts were a bit uneven and kept tilting since the nails were not that stable. The part we struggled on was, of course, painting again, which took the longest amount of time due to our perfectionist selves. When we painted, we used masking tape to cover up parts we didn't want to be painted, such as the whiteboard. Thankfully, the masking tape didn't peel off the paint (put masking tape only on dry paint). Amanda made hers a pink/reddish gradient, Emily made hers based off the song "Light" by Wave to Earth, and Queenie painted hers based off the colors of an Owala water bottle. The whole process from when we reached Home Depot to finishing painting took about three and a half hours.



Step 3 & 4 BONUS (boxes)

This idea of making a box originated off of the fourth step, when we cut out 6" by 6" squares of plywood. Amanda had the drive to cut out more pieces, which had resulted in this. Unfortunately, plywood isn't a suitable choice to make a box, since the layers could easily break off, however, we made it work. Although, it came out very disproportionate. Some of the nail heads chipped off, and it was very, very hard to remove nails. Nevertheless, we finished the atrocious box on the evening-night of July 27th. Then, on August 3rd, we met up again to refine the box (using cardboard and hot glue to fill in the crevices and uneven sides). We left the lid alone to stay "natural" though. The next day, on August 4th, we went back to Emily's house after the scout meeting. There, we started painting the box. We decided to make the lid say "Triple Trouble"--it may sound corny, but it originated from "Quadruple Trouble", the nickname Hillary gave us when Chi was still here. Then, on the front side, we painted it with old Girl Scout logo. We decided that we wanted to make the box personal and show off our similarities/differences. After much consideration, we settled on having 3 sides with cover, each side being dedicated to one of our favorite songs/albums. Amanda chose the song "Notion" by The Rare Occasions, Emily chose the song "Wave" by Wave to Earth, and Queenie chose album "Blue Hour" by TXT. Since it was a collaboration and it was difficult to all paint at once, we each took turns, which ended up being very time-consuming.

We ended up making another box on August 5th, this time with a miter saw and table saw (to start off from the big piece of plywood). We made it the same way, using 6" by 6" squares for the sides, but this time we measured the top and bottom accurately, so the top and bottom (about 6 $\frac{3}{4}$ " by 6 $\frac{3}{4}$ ") didn't look wonky. We then went to Home Depot to buy a hinge and newer nails. Once we got back, we sanded down the pieces and nailed it together. This time, it came out near-perfect. This box we decided to dedicate to the aMAZE Journey we're currently doing. So, three of the sides (the top and two sides) would be based off the journey badge, and the others would still be peace related.

Reflections

- [Amanda's](#)
- [Emily's](#)
- [Queenie's](#)