



Trashmagination Podcast #78 – Jugloo or an Igloo Built from Plastic Jugs

Welcome to Trashmagination, a podcast about reimagining trash. I'm Carla Brown.

Today I'm going to tell you about how my husband Bob, my son Russell and I built an igloo from plastic jugs over the past two months. Even if you have never wanted to build an igloo from plastic jugs, it's a good case study on what it takes to make something big from trash. It's also about how to get a bunch of people to do a creative reuse project.

Now you might say, "But Carla, plastic jugs are recycled. They are type 1 PET plastic which most municipal recycling programs accept. They don't go in the trash." And I would say that only nine percent of plastics in the world are currently recycled. The world cannot handle the amount of single-use disposables that we are creating. I also know that most of the jugs which we used in our project were going in the trash – but more on that later.

So your next question might be, "Why would you want to build an igloo from plastic jugs?" other than for the normal reasons which is that I like to make lots of things from trash. To be honest, this was not on my list of things I wanted to build. I was asked if I would do it by Jeanne Loveland, one of the co-organizers of Maker Faire NoVa. Trashmagination has hosted activities at two Maker Faires before – in 2014 [<https://trashmagination.com/nova-maker-faire-was-awesome/>] and 2015 [<https://trashmagination.com/maker-faire-2015/>]. I haven't hosted an activity since then because our Maker Faires are held on Sundays and I always have taiko practice on Sundays. About six months ago, I was at Jeanne's house because we are both members of Buy Nothing Reston, and I had put out a call for broken garden hoses for another Trashmagination project. She was giving me her old hoses and she asked if Trashmagination might host an activity at the Maker Faire. I told her about my taiko practices on Sundays. She asked if my taiko performance group might perform at the Maker Faire, and maybe teach people how we make our drums. I said it's possible but I needed to ask my group. A few weeks later, she emailed about my taiko group and in that email she asked if I would build an igloo from plastic jugs as well. That might seem like a very random thing for her to ask me but you have to realize that building an igloo from plastic jugs is not a new idea. There are many videos on Youtube that show how to do it. The Maker Faire organizers saw those videos but they needed someone to lead the effort, so they thought of Trashmagination. At first I said "no" because I had too much going on and I knew it would already be a hectic day if my taiko group performed. But then I started thinking about it and my curiosity got the better of me. I thought that maybe I could do this project if I could get some help.

That's when I thought of my son's Scout troop. I'm very involved with Troop 1577. I am the Advancement Coordinator which means I keep track of all the badges and awards that the Scouts earn. I match Scouts with counselors to work on badges. And I also am a Merit Badge Counselor for many badges including the Sustainability merit badge. I was thinking it could be a great project for the Scouts to build an igloo from plastic jugs because they need to do a certain number of service hours related to conservation. I figured that since this project was about plastic pollution, it could work. I asked the Scoutmaster about the idea. He wasn't sure because normally conservation projects are done outdoors – activities like removing invasive plants or building bird houses. So I reached out to the contact at the district level of Scouting who specializes in conservation projects, and she also seemed a bit concerned about the idea for the same reason, but when I talked about how there is not much point in building birdhouses if the whole earth is covered in plastic. So she said it would be fine as long as our Scoutmaster gave the okay. So that's what we did.

Collecting the Plastic Jugs

When I researched how to build the igloo, I saw lots of igloos in many sizes, but very few gave the number of jugs that they used. The only one we found with numbers said that they built their igloo with about 435 gallon-sized jugs. This video was by Midland Christian School [<https://www.youtube.com/watch?v=MdHBY2Axqdw>]. Their igloo looked like the size that we wanted to build, so we set a goal of collecting 450 plastic jugs.

I posted requests for jugs on my Buy Nothing group, and my personal Facebook account. I also announced it at a Scout meeting. Then on recycling day, I started walking around local neighborhoods to gather plastic jugs. But I could tell within a week that we would not have enough jugs with those methods alone. We had only about 6 weeks until the Maker Faire. That's when someone put a note on my Buy Nothing group that they had built an igloo from plastic jugs, and they got almost all their jugs from Starbucks.

I went to three Starbucks in my town and asked if they would save their jugs for me. All three said yes! I started visiting all three locations every day. Two locations were inconsistent about saving their jugs and they usually only had about 5 jugs for me when they remembered. But one location was a superstar! Plus this was the location walking distance from my house. It's called the North Point Starbucks. Hooray for the North Point Starbucks! I started visiting them in the morning after the rush, and then in the evening before they closed. Usually they collected about 20 jugs per day on week days and 30 on the weekends. In three weeks, I had enough jugs.

The collecting phase of this project was very time consuming because I had to wash all the jugs as fast as possible. If you let milk sit in the jugs, it starts to smell bad very quickly. Washing 20-30 jugs per day took a lot of time. I lined them up on my dining room table to dry, and then tied them in groups of 10. We were storing the jugs in my guest room, but then my parents came to visit, so had to move all the jugs out of there. It is quite a huge pile!

During this time, we started to call this project the Jugloo where we combined the word jug and igloo.

Designing the Jugloo

Every video showing how to make an igloo from plastic jugs relies on gluing the jugs together with a hot glue gun. My husband Bob and I did not like that idea for a lot of reasons. The most important reason was that we wanted to build the Jugloo completely at home and then transport it to the Maker Faire. That meant we would go through twice as much glue as a normal project, and that seemed very wasteful. The few tests we did with glue made us even more sure we didn't want to use glue. It took so much glue! The video by Christian Midland School said they spent only \$12 on glue sticks, so it wasn't a cost issue. It was more about the waste.

Bob and I discussed how we could build the igloo without glue, and we settled on zip ties. I drilled holes in two milk jugs with my drill press and figured out a way to connect them with the smallest zip ties. That made a solid connection. But drilling 8 holes in 400 jugs seemed like a daunting task. That's when Bob came up with the idea to use his soldering iron to make the holes. The soldering iron made the holes super-fast. The only downside was that it made a terrible and likely toxic smell. So Bob did all the soldering outside with a fan blowing on his work to send the smell away from him. He drilled almost all the jugs in one afternoon.

That's when Bob got really into this project. He loved putting the holes in the jugs and connecting them with zip ties. He found it very relaxing. He started connecting the jugs into long lines which we called snakes because when you pick them up, they tend to bend and curl. At first he was connecting 10 jugs together. But then I checked to see what would fit in my Honda Fit, and I found I could fit snakes made with 9 jugs into flat layers. So he made snakes with 9 jugs.

One cool thing about these snakes is that when you hold them with the spouts facing up, they form a straight line. But when you hold them with the spouts facing down, they curl. They make a curve just like the walls of an igloo! So that was a really great property of this design.

Building the Jugloo

A week before the Maker Faire, we tried to build the Jugloo in our kitchen. The biggest challenge was the door. If the Jugloo was made from fully connected circles of jugs, the zip ties would hold it together. But because there needed to be a gap for the door, there was nothing to keep the jugs in position. In the videos that we had watched, everyone started their igloo by gluing jugs to a big piece of cardboard. We wanted to try duct taping it to the floor so we wouldn't have to transport cardboard. That did not work. The tape could not bear the weight of all those jugs and our Jugloo collapsed.

It was a frustrating day. It didn't seem like the zip ties were work at all. They did not hold the jugs stiffly enough to form walls. We went to buy a hot glue gun but found it was defective, which was a good thing because then we were pushed to come up with another idea.

I wanted to make something like a door frame out of PVC pipes. My hope was that would give us a structure to hold up the Jugloo. I was looking around my house for scrap wood or PVC pipes to make a door frame when I saw three metal garment racks. I used them at past events to hang up my Trashmagination banner and displays. They were just the right height for the Jugloo. We decided to use the garment racks to act like a skeleton for the Jugloo.

In the end, the Jugloo was more like a hut. We built the roof as one piece, which was a series of concentric circles all attached. We placed that on top of the three garment racks set in a triangle. Then we made something like a giant curtain of jugs and stacked that from the ground up to the roof, zip tied to the garment racks.

So hooray! We now knew we had a viable Jugloo for the Maker Faire! We celebrated for a day and then we had to take it apart down to the snakes to transport it to the Maker Faire. We could not have carried it out of the door fully constructed.

One other note: We got a refrigerator box from Home Depot and cut it in a giant circle to act as a floor. It wasn't critical for the strength of the Jugloo, but it was a great way to remember where to put the garment racks.

Maker Faire

The day before the Maker Faire, we transported the jugs. To get them from our house to our car efficiently, we tied 6 or 7 snakes into a bundle with strapping. That means we were carrying about 50 jugs at a time, so it would take about 8 trips. We fit about 200 jugs in each of our cars. I have a Honda Fit and Bob has a Prius. Both of our cars are hatchbacks and we could put down the back seat, so that's why we could fit a lot in there.

At the Maker Faire event, I was focused on my taiko group – transporting the drums, performing and then teaching a workshop on how to make a practice drum. So Bob was in charge of the Jugloo for the whole event. Both our kids volunteered as well, along with Scouts and Scout parents from the troop. Bob and everyone else did a great job! For the few moments that I was at the Jugloo, I was really thrilled to see a kid in a wheelchair going inside the Jugloo. I was happy we built it with a big enough door so that he could do that.

Jugloo Numbers

Next I will share numbers from the project. Bob put together a document which lists these numbers along with instructions. He made it so the Scouts could build the Jugloo at the Faire, and now it can help you!

- There were 7 rows of 32 jugs to form the walls (224 jugs)
- The dome roof was made from 119 jugs in concentric circles.
- The entrance was three rows of 18 (54 jugs)
- So the total # of jugs was 397 for the Jugloo.

In terms of size, the cardboard base of the Jugloo is _____ feet across, so it's just a little bit smaller than that inside. It was about four feet tall along the edges and five feet tall at the peak.

My daughter made a cute sign out of jugs. She wrote the letters for Jugloo and Troop 1577 on jugs with marker. So that used another 15 jugs. The total jug count was 412 jugs.

In terms of total cost for our Jugloo, we already owned the garment racks. If you had to buy them, they were \$20 each. I'll link to the model in the shows notes [<https://www.target.com/p/metal-base-adjustable-single-rod-garment-rack-black-room-essentials-153/-/A-51688630>]. We also already owned the soldering iron. To connect the jugs to each other, we bought a pack of small zip ties - \$20 for 1,000. The most expensive part was the longer zip ties which holds the snakes to each other and to the garment racks. Those cost about \$15 for 100, and we used about 100 to put it together.

Bob Interview

To finish this episode, I invited Bob for an interview. Bob will be the first guest on my podcast!

- 1) Why do you think you got so interested in working on the Jugloo?
- 2) Since I was not with you during most of the Maker Faire, what stories can you share about how people interacted with the Jugloo?
- 3) What do you think the Scouts learned from doing this project, especially our son, Russell?
- 4) Some people might wonder how you put up with all my creative reuse projects – but you have been doing that for our whole marriage which is now 22 years. What do you say to people when they ask you about Trashmagination?

Thank you!

Thank you for listening! Please let me know about any structures you have built out of recycled materials at trashmagination@gmail.com.

Until next time – may you see plastic jugs as a source of art in your life!