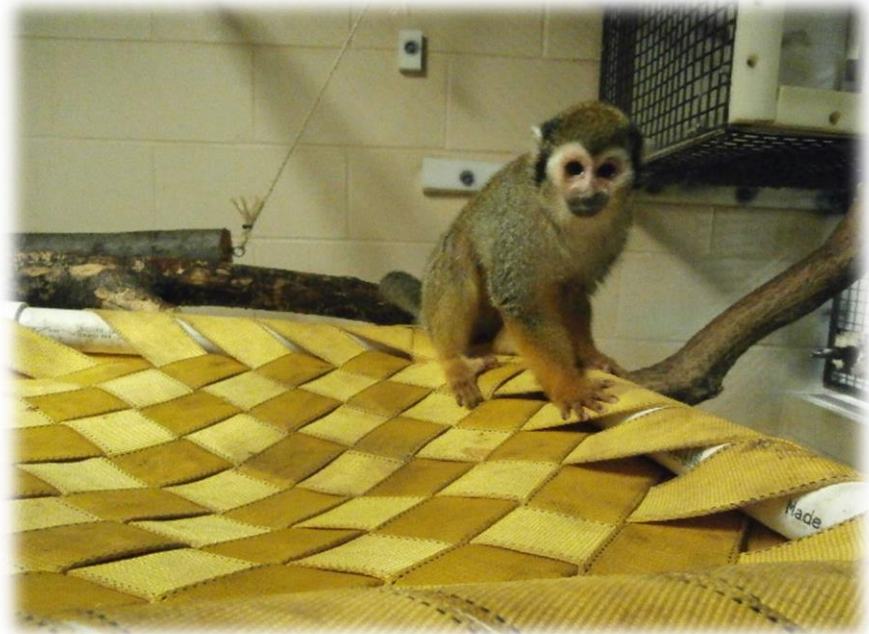


## Charpai Style Weave

Adapted from instructions submitted by Micala Teetzen for the Hose2Habitat Enrichment Contest 2017  
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**General Description:** Instead of a traditional hammock where each cross piece is cut and individually secured around the frame, this weaving technique uses single continuous straps and needs only a few screws to secure the ends of the straps. This is based on the style of weaving that is used to make charpai beds in India, Pakistan and Bangladesh. Watch a video of the process here: <http://thekidshouldseethis.com/post/weaving-a-traditional-charpai-bed>

The advantages of this style of weaving include:

- no measuring and cutting of straps/firehose
- less waste of weaving material
- much less hardware is required (greatly reducing the cost and weight of the project)
- considerably faster since you don't have to drill holes to secure each piece
- works on various sizes and shapes of frames

**Species:** Small mammals such as coati, tayra, lemurs, monkeys, small cats, red pandas, raccoons, otters and more. Much larger versions could be made for large cats, bears, and apes.

**Uses:** Climbing, playing, exercise, resting, feeding platform, use as a ladder to allow animal to reach higher spot in exhibit, high vantage spot, hang toys from it, cover it with fabric to make a hiding spot, add bedding for a nest spot, separate resting spaces for multiple animals, and more.

**Safety Concerns:** Tower could fall over if not secured. Entanglement if the weave is too loose. Ingestion of weaving material if the animal chews on it.



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### Materials Needed (sizes based on unit shown in most pictures in these instructions)

1" PVC (estimated 56')  
Fittings: (6) 3-way connectors, (14) 4-way tees/connectors  
PVC cement  
Webbing strap (or fire hose) ~200' of 1.75" wide  
Tool to cut straps (or fire hose)  
Tool to cut and sand plastic PVC (if not precut and sanded)  
Machine screws, washers, nuts  
Screw driver and wrench to secure screws  
Drill and bit to make holes for screws

### General Information

Build the tower frame from PVC with the desired number of shelves. Use an appropriate size of PVC and dimensions for the shelves depending on the species and area you are making it for. The unit in these instructions was designed for small mammals (coati in particular) and is made with 1" pipe and each hammock is 19"x19". The total height is 4'6". The webbing strap is 1.75" wide.



When building the structure, ensure it is as square as possible. The PVC cement sets quickly and is not very forgiving. If the pieces aren't aligned correctly, it is difficult to make them fit together and the whole project can quickly go awry. Consider dry fitting the structure and marking each piece at the seams as shown on the left. When gluing, quickly twist until the lines match up. If you use a dry erase marker (which will wipe off easily), be careful not to touch the marks before you start gluing.

### Additional advice from [www.formufit.com](http://www.formufit.com)

*It is vitally important, that immediately after cementing and seating that you check that your project is square where you require it to be. This is critical when building boxes or items where the fittings and pipe connecting segments are required to be in parallel and perpendicular directions.*

*If cementing, you have approximately 30 seconds to make any changes in direction of the fittings once the cement is applied. Checking for square should be done immediately after seating the pipe.*

*If using the set screw method, you need to check for squareness before you drill the screws into the fitting and pipe.*

### HOW TO ENSURE THE ITEM IS SQUARE

- Place the structure on a flat, level surface and use that surface to square it up. Press down on the fittings and pipe so that they are at the same level.
- Use a straight edge between two perpendicular sections to make sure that they are at the same level.
- Place the structure on a flat surface and use a bubble level to make sure that it is even.



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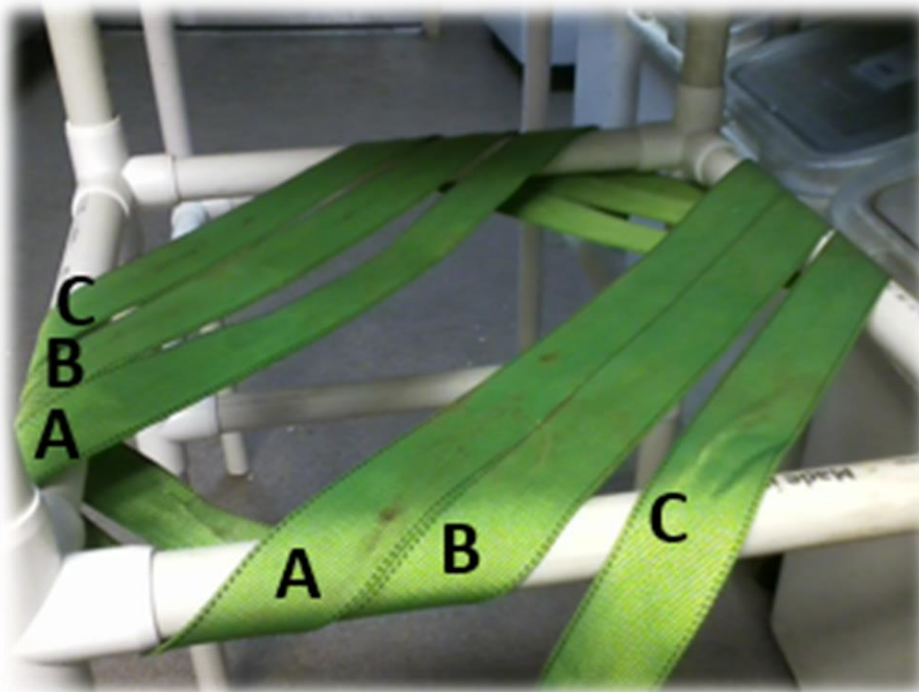


Make sure you know exactly where and in what direction to put the next piece before gluing it. Case in point: In the photo on the left the 4-way fittings were glued in the wrong place for the second shelf. When working with the shelf upside down on a work surface, it is easy to get confused which direction the next piece goes. Several adjustments had to be made to work around this mistake, so save yourself a headache and get it right the first time! It ended up working out well because the “bonus” bar works nicely as a handle to carry the shelf. To prevent mistakes, pieces could be numbered with dry erase marker. Then match the numbers when gluing. (For example, put matching numbers at each joint; “1” on the pipe and “1” on the fitting.) Alternatively, dry fit the pieces together and use screws to hold them in place.

### INSTRUCTIONS

**STEP 1.** Secure the end of the strap close to a corner using duct tape to hold it in place for now.

**STEP 2.** Wrap 3 rows as shown below. The top pieces should be long and as close to the middle of the square as possible. The underneath ones are short and tight to the corners. You will make As first, then Bs, then Cs. The straps should be next to each other and not overlap.

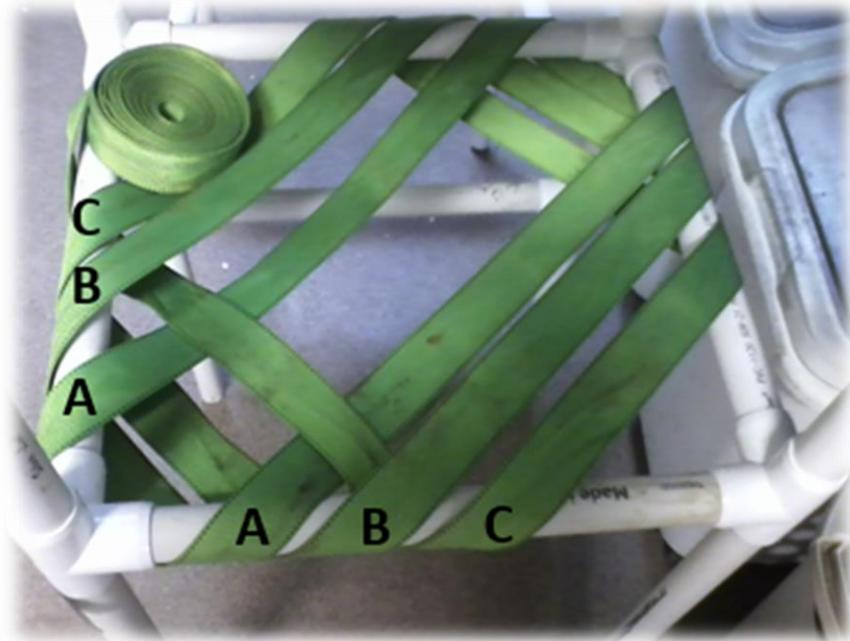




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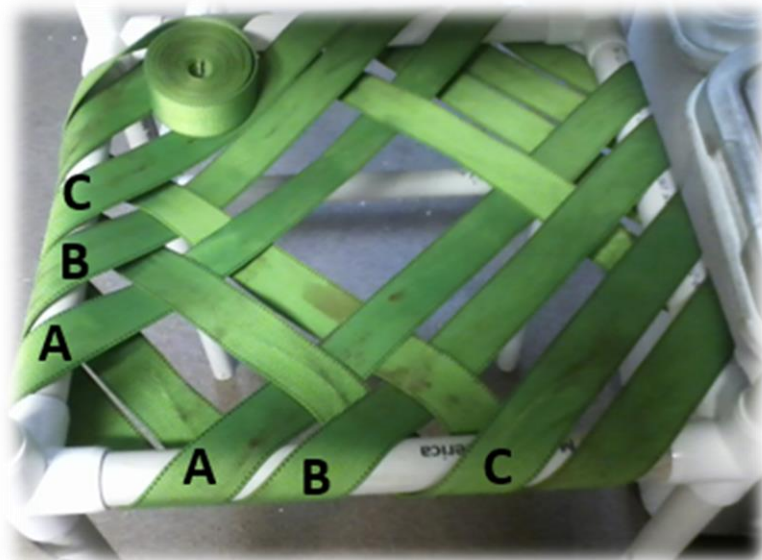
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**STEP 3.** Begin to weave. Keep the webbing in a roll, as this is the easiest way to work with it. Push the roll up to go OVER the A straps, as shown below. In order for the weaving to work correctly, it is important that those two rows match.



**STEP 4.** Repeat on the opposite side. Go OVER the two A straps. TIP: The wrapping on the edge will always match its neighboring straps so that it looks even and nice (i.e. all straps on each side of the square will either come from under and go over OR come in over and wrap under).

**STEP 5.** Weave over the B straps and under the A straps as seen below.

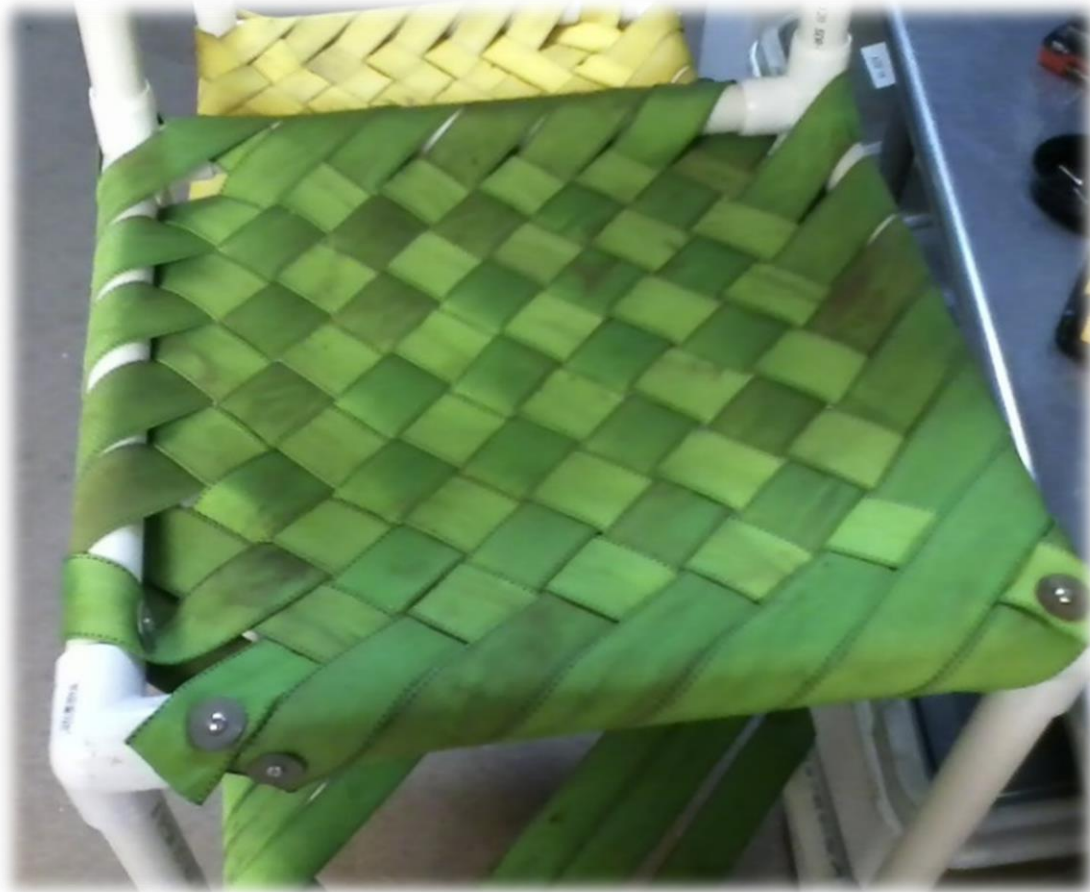




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**STEP 6.** Continue working on filling in the weaves, tightening everything as you go. Continue until all of the strap is used or the entire open space is covered with woven strap. If you get “woven into a corner” and get to a place where you can no longer weave, but still have gaps, cut the strap and start it again in the area that has the most gaps.



**STEP 7.** When you are pleased with the results, remove the duct tape and secure the ends in place with screws, washers, and nuts. Hold the strap tight as you place the screws. Trim the excess strap. You can burn the ends with a blowtorch, heat gun, lighter, etc. to prevent fraying. Sometimes an extra screw is needed to cinch down a gap in an awkward area like on the lower left side above.

**NOTE:** Every hammock is a little different as far as working around the fittings on the corners. Each hammocks in the item shown in these instructions took 35' - 40' of webbing. The length of webbing needed will vary considerably if you use a different width of webbing, or if the dimensions of your frame are different. Firehose could also be woven in this manner.



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