
Step 2 Checklist: Winding the Warp & Securing the Cross

- Create guide string.
- Place guide string on warping board to set path for measuring out your warp.
- Wind the first warp.
 - Starting at the top and working down to bottom measure out the warp, **creating and maintaining the cross** on the top of the warping board.
 - Insert counting string at the cross to count bundles of ____.
 - Count out ____ warp ends (____ bundles) then tie off to the starting peg.
 - Tie suitcase handle to secure the cross.**
 - Tie chokes at beginning and end of warp and just past the cross.
 - Chain the warp starting at the bottom and working up to the choke tie after the cross.
 - Secure the chain by untying the choke bow and tying it around the last loop of the chain with a half bow.
 - Remove the chain from the board and move to the table.
- Wind the second warp.
 - Starting at the top and working down to bottom measure out the warp, **creating and maintaining the cross** on the top of the warping board.
 - Insert counting string at the cross to count bundles of ____.
 - Count out ____ warp ends (____ bundles) then tie off to the starting peg.
 - Tie suitcase handle to secure the cross.**
 - Tie chokes at beginning and end of warp and just past the cross.
 - Chain the warp starting at the bottom and working up to the choke tie after the cross.
 - Secure the chain by untying the choke bow and tying it around the last loop of the chain with a half bow.
 - Remove the chain from the board and move to the table.
- Insert the lease sticks into the warp chains at the cross with the knots for the counting threads next to each other at the middle warp chains. Placing the counting thread knots in the center will ensure that you can untie the counting threads to release the bundles as you work through the warp starting from the center and moving out to the ends with each bundle. So, on one chain the suitcase handle will be on top, and for the other the handle will be on the bottom.

When all steps are complete proceed to the next section.

Step 3 Checklist: Sleying the Reed and Installing the Reed in the Beater

- Retrieve the reed from the beater in the loom.
- Place the reed in the front of the reed stands.
- Place the lease sticks in the notches at the back of the reed stands.
- Place the weight on the warp chains.
- Cut the loops at the end of the warp chain where the choke tie was tied.
- Remove the suitcase handle.
- Starting from the middle of the reed, untie the counting thread from a bundle of warp ends and use a sley hook to thread the reed, ___ thread per dent, pulling the warp ends **IN ORDER** from the cross.
- After threading each bundle (___ threads) check your threading then tie a half bow to secure the bundle.
- When all warp ends have been pulled through a dent in the reed double-check your threading, and make sure each bundle is secured with a slip knot.

When all steps are complete proceed to the next section.

Step 4 Checklist: Thread the Heddles

- Remove the back beam from the loom.
- Working from one side to the other untie a bundle of warp ends and thread them IN ORDER through the heddles on the shaft. The correct order is _____. Remember that shaft 1 will be the shaft closed to the weaver while they weave.
- After threading all warp ends in a bundle double-check your threading. Threads should go cleanly in parallel from the front, through the reed, and through the heddles to the back. Check for threads that are crossed in the shafts, warp ends that are not threaded through a heddle, or threads that are out of order. After confirming your threading, even the ends up and tie a small overhand knot and proceed to the next bundle.

When all steps are complete proceed to the next section.

Step 5 Checklist: Wind on to the Warp Beam

- Connect the warp thread bundles to the warp beam stick by snitching on to the stick using a larks head knot.
- Connect the warp stick to the back apron stick by tying strong ties at each end of the warp using a figure 8 wrap around the 2 sticks. The sticks should be approximately 1 inch apart.
- Spread the warp bundles evenly across the stick so that the width on the stick matches the width in the reed.
- Add two more ties to secure the two sticks together.
- Reinstall the back beam on the loom making sure that the warp will go above and over the back beam then onto the warp beam.
- A few inches at a time, pull the warp chains at the front of the loom and strum the warp to untangle the warp and apply even tension across the warp.
- Gently pull the beater back to the front of the loom and check for tangles in the warp. Tension and strum the warp as needed to remove tangles in the section closest to the reed.
- Slowly wind the warp onto the warp beam, turning the warp crank one revolution at a time, until the warp stick and warp knots reach the warp beam.
- Insert paper to begin separating the warp layers on the warp beam.
- Return to the front of the loom and again pull the warp chains to apply even tension across the warp, strumming as needed to remove tangles in the section closest to the reed, and moving the beater to the front beam.
- Go back and forth between the warp warp beam and the front beam, cranking the warp beam at most one revolution at a time then returning to the front of the loom to neaten and tension the warp.
- Continue winding onto the warp beam, adding paper if/as needed, until the loops in the warp at the front of the loom reach the front beam.

When all steps are complete proceed to the next section.

Step 6 Checklist: Tie on to the Cloth Beam

- Cut the loops in the warp chains at the front of the loom where the last choke tie was tied.
- Remove the lease sticks.
- Bring the cloth beam apron around the top of the front beam and use a larks head knot to tie on to the cloth beam apron stick. Work in your $\frac{1}{2}$ - 1 inch bundles of 6 - 12 warp threads, spacing the warp out on the stick so that it's the same width as the warp in reed.
- After tying the first group of knots go back and tighten each bundle until you have nice, even tension across the entire warp.
- After the tension has been evened out, tie bows to complete this step.

When all steps are complete proceed to the next section.

Step 7 Checklist: Tie Up, Check for Threading Errors, and Insert the Header

- Connect the treadles to the lamms per the tie up provided in the class draft.
- Step on each treadle, one at a time, and check the shed for any issues, i.e. crossed threads, shafts lifting when they shouldn't, etc.
- Step on treadles 1 and 2 at the same time and make sure that all threads are lifted. If any threads do not lift they are not threaded in the heddles correctly, and this will need to be fixed prior to weaving.
- Alternating between treadles 1 and 2, insert sticks or heavy weft thread into the shed, leaving an inch or two of space between each pick.
- Pull the beater forward to pull the header together and spread the warp threads evenly, closing the gaps left by the bundles tied on to the cloth beam apron. Repeat if/as needed.

When all steps are complete proceed to the next section.

Hemstitching

Hemstitching is one way to finish the edge of a woven piece. There are several ways to hemstitch, and just as we said at the beginning, the correct way to hemstitch is the one that works best for you. We'll teach you one that many people use.

First, decide how many picks you want within the hemstitching and how many warp ends in a bundle. For this project we're using 4 warp ends per bundle and stitching 3 picks into the cloth.

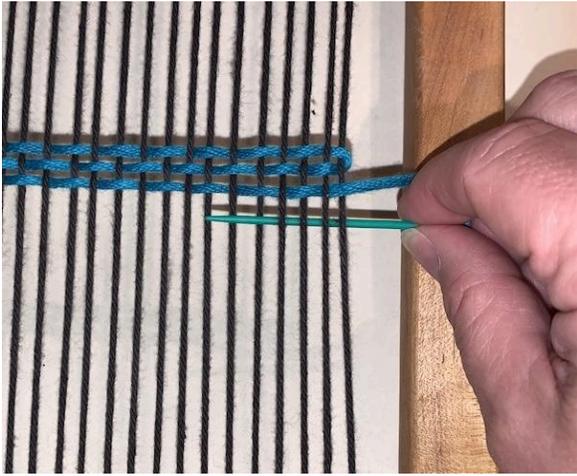
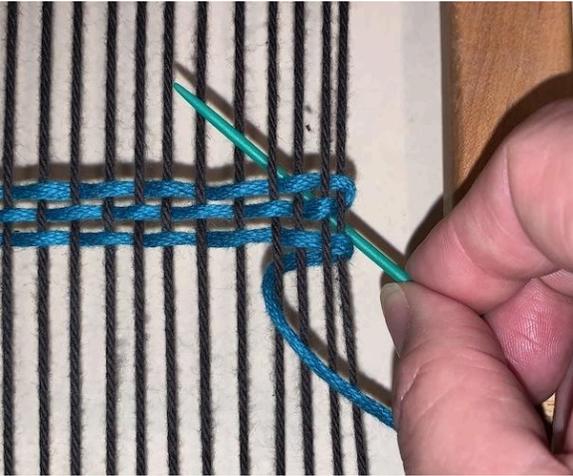
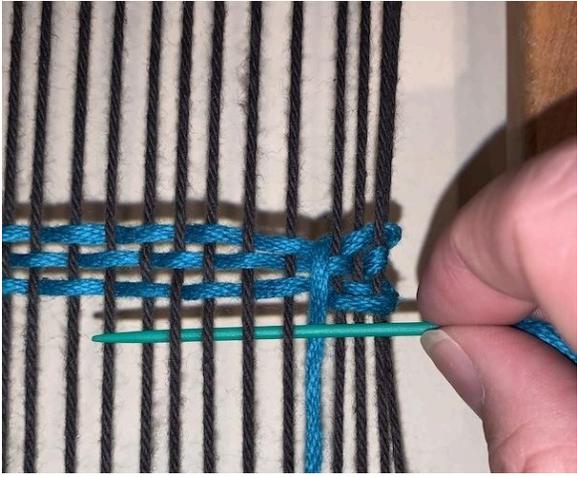
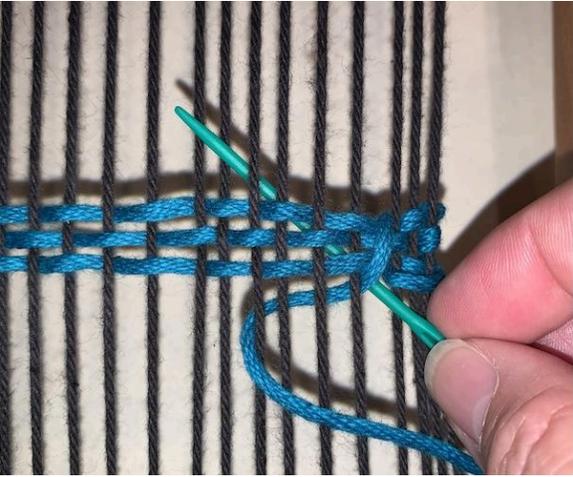
Right to left is usually easier for people who hold the needle in the right hand, left to right is usually easier for people who hold the needle in the left hand, but use whichever one is more comfortable for you.

At the beginning of the piece, measure a tail of the weft yarn 4-5 times the width of the warp, coming out of the side where stitching will begin, and then weave the three picks that will lie within the hemstitching. Set the shuttle aside and proceed to hemstitch across the warp using a blunt tapestry needle and the long tail.

At the end of the piece, repeat your "Bundle and Stitch" until you reach the other side of the piece. After hemstitching at the end, loosen the warp and weave it in using the tapestry needle.

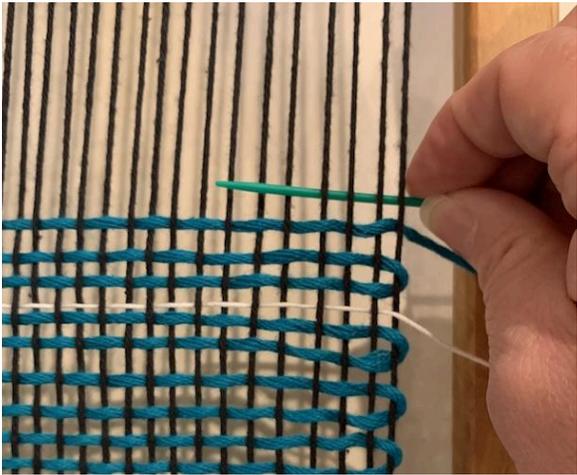
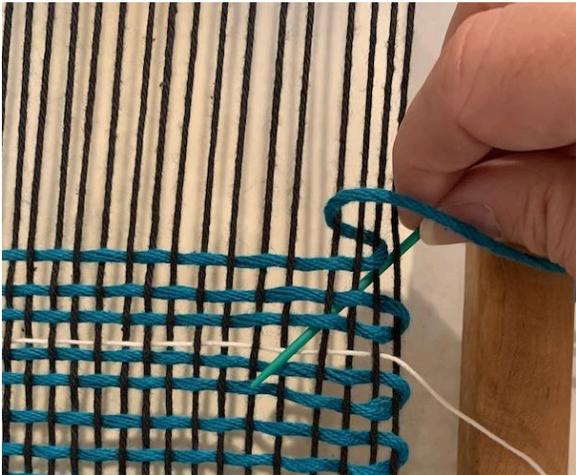
On your project sheet you might want to record the number of picks, number of ends in a bundle, and what style of hemstitching you're using for each item so you can use the same numbers at the end of the piece, which is significant if it's long and you might not remember.

The easiest way to remember how this works is to think **“Bundle, then stitch”**.

	
<p>The first step is to “Bundle” by running the tapestry needle under your bundle threads at the edge of the cloth. For the first and final bundles, include a floating selvedge if you have one but don’t count it as part of the bundle.</p>	<p>Then “Stitch” by bringing the needle back to where you started and running the needle under the same bundle threads but bring the needle up in the cloth, not at the starting/ending edge of the piece.</p>
	
<p>Next “Bundle” the next group of threads,</p>	<p>then “Stitch” them into the cloth.</p>

Repeat your “Bundle and Stitch” until you reach the other side of the piece. After hemstitching at the start of an item, you can place the end of the tail in a shed for a couple of inches and continue weaving the rest of the piece.

It's the same process at the other end, but you'll have the entire piece to 'stitch' into. To make it easier to find the 'stitch' spot, you can place a piece of sewing thread in a contrasting color along with a pick of the regular weft thread. Weave the last three picks, ending on the side where you want to start your hemstitching, then measure out 4-5 times the width of the warp and cut the weft thread from the shuttle. Then "Bundle and Stitch" across as before, pointing the needle down into the cloth for the stitch step.

	
<p>The first step is to "Bundle" by running the tapestry needle under your bundle threads at the edge of the cloth. For the first and final bundles, include a floating selvedge if you have one but don't count it as part of the bundle.</p>	<p>Then "Stitch" by bringing the needle back to where you started and running the needle under the same bundle threads but bring the needle up in the cloth, not at the starting/ending edge of the piece. The contrast thread shows where to stitch.</p>
	
<p>Next "Bundle" the next group of threads,</p>	<p>then "Stitch" them into the cloth.</p>

Project Worksheet

Name: _____

Date Started: _____ Date Finished: _____

1. PROJECT DESCRIPTION

What is being woven?	
How many?	
Weave Structure?	
Source/Inspiration?	

2. PROJECT DIMENSIONS

	After Finishing*	Before Finishing*
Width		
Woven length		
PLUS Hem or fringe length		
= Total woven length		

* The difference between before and after measurements is due to shrinkage.

3. WARP DESCRIPTION

Material	
Ends per inch (epi)	
Width in reed	
Total warp ends	
Floating selvages	
Sley/Reed	
Source/Cost	

4. WEFT DESCRIPTION

Material	
Picks per inch	
Source/Cost	

5. WARP CALCULATIONS

Calculation #1: Total Number of Warp Ends

Ends per Inch (epi)		This is the total number of individual threads per inch across the piece(s) being woven
X Width in the reed		The is the width across the piece as measured in the reed before weaving (i.e., before draw-in)
= Total Number of warp ends		The product of epi and width in reed is the total number of warp threads in the piece(s)

Calculation #2: Warp Length

Total Article Length, in inches		This is the total length of one piece, including the hem, fringe, or other finishing technique [NOTE: 12" REFLECTS 1" HEMS ON EACH END; ALLOW MORE FOR KNOTTED FRINGE.]
X Number of Articles		The total number of pieces desired from the warp
= Subtotal of warp length, in inches		The product of the items above gives the amount of warp needed for the number of articles desired BEFORE accounting for any loss of warp length
+ Take-up		This is an adjustment to account for the lost warp length that occurs during weaving. Some warp loss is caused by the take in deflection of each warp end that happens when the weft is inserted, and some happens when the warp under tension on the loom relaxes once removed from the loom. Take-up depends on the weave structure, but a rule of thumb for plain weave and twill is to increase the total by 10%, rounded UP to the nearest inch.
= Total Woven Length		This is the total amount of warp that is needed to weave the body of the piece(s)
+ Loom Waste, in inches		Loom waste is warp that cannot be woven. Some warp is lost securing the warp to the loom and some is lost in the castle. Waste depends on the depth of the loom and how generous the weaver makes their ties at the front and back of the loom.
= Warp Length, inches		Woven length plus waste for warp length in inches
= Warp Length, yds		Divide by 36" for warp length in yds (round UP to the nearest half yard)

6. WEAVING DRAFT (THREADING, TIE-UP, TREADLING)

Note here the source of the project draft and include any notes needed to replicate the final project setup.

7. NOTES/REMINDERS/IDEAS FOR FUTURE PROJECTS

You can use this QR code to download a Project Worksheet from the Portland Handweavers Guild website.





This is a sample draft that can be used to try your hand at generating different patterns with the same threading.