

# WARPING STEPS \* BACK TO FRONT

## 1 Make a guide string

Measure a guide string the desired length of the warp plus about 6" for tying the ends of the string to pegs. Tie one end to the top left peg and make a path on the warping board that accommodates the full length of the string with the other end tied to a second peg.

## 2 Wind the warp

Wind the warp following the guide string starting at the bottom peg with the threading cross near the top left peg; see Figure 1. (This makes all warp loops at the top peg continuous for attaching to the warp beam apron rod.)

### CHOICES

- Wind one end at a time for warps with lots of colors. At color changes, tie the new end to the old end at the first or last peg.
- Wind two ends together for solid-color warps, warps with few color changes, or warps with two alternating colors. Keep a finger between the two threads as you wind to prevent them from twisting around each other.

### TIPS

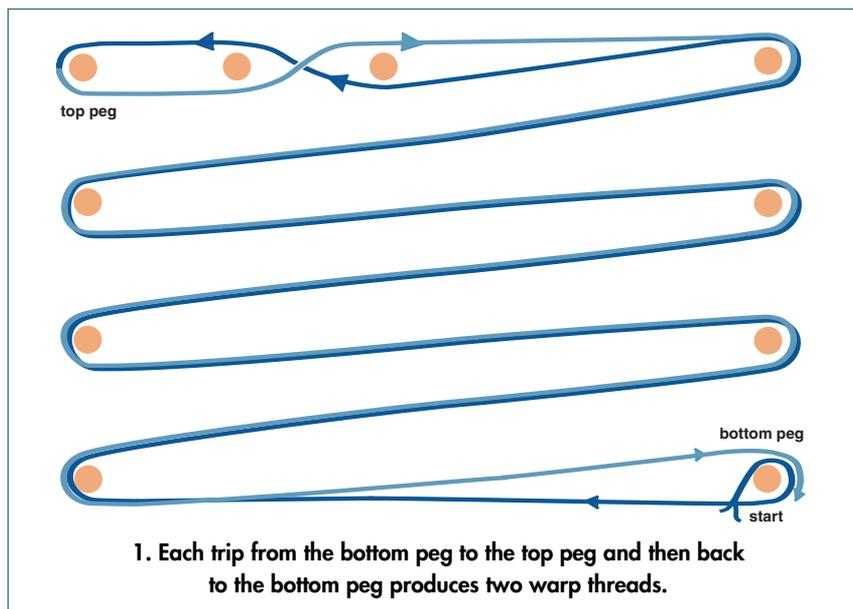
- Wind with even but loose tension—the threads should be just tight enough to prevent them from drooping.
- Do not overlap threads on the pegs.
- If the total number of threads or their thickness makes them too crowded on the pegs (covering more than half of each peg when pushed toward the board), wind the warp in two or more equal chains.

## 3 Count the threads

Count the warp threads at the cross by finger-crocheting a cord around each group of threads that will be placed in one space of the raddle (see Photo 5, page 3).

## 4 Secure the warp chain

Tie the four arms of the cross as in



1. Each trip from the bottom peg to the top peg and then back to the bottom peg produces two warp threads.

Figure 2, page 2. Tie one choke tie (a cord wrapped around the warp and secured with a square knot; see Photo 4, page 3) near the end peg. If the warp threads are very slippery or springy, tie other choke ties along the length of the warp as necessary.

## 5 Chain the warp

Cut the warp loops at the last peg and chain the warp from the board: Make a loop of the threads and pull another loop through the first loop with one hand. Pull a loop through the new loop with the other hand (see Photo 3, page 3). Continue, pulling loops hand over hand until you reach the cross, and remove the chain from the warping board.

## 6 Spread the warp in the raddle

Attach the raddle to the back beam. Place lease sticks in the threading cross. Secure the lease sticks to the sides of the loom between the back beam and the shafts (the structure of your loom will determine the best way to do this; the lease sticks should be side by side with a distance between them of about 1"). Place a sturdy rod in the uncut end loops near the cross.

Attach the rod to the apron rod of the warp beam, sliding the warp to one side (it will rest on one end of the raddle with the counting thread and cross ties still in place). With the heddles pushed to the sides and the reed removed, drape the rest of the warp chain through the castle, over the breast beam, and down to the floor in front of the loom. Tie the warp to the breast beam with a piece of cord to keep the warp in place while you spread it in the raddle. Remove the ties that secured the cross.

Undoing a stitch at a time in the finger-crocheted counting cord, place the group of threads encircled by each stitch in one space of the raddle, centered for the weaving width required by your project. Secure the warp in the raddle by stretching rubber bands across the pegs. When the warp is completely spread and secured with rubber bands, untie the cord holding the warp at the breast beam.

### TIP

- If the breast beam and back beam of your loom are about the same height and the length of your lease sticks is close to the width of your loom,

here is one way to secure them: Tie two cords on each side of the warp from breast beam to back beam. With the lease sticks parallel to the back beam and resting on the cords, on one side lower one cord and raise the other to make an opening in which to place the end of one lease stick, then reverse the positions of the cords to make an opening for the end of the other lease stick. Repeat with the cords on the other side, securing the other ends of both lease sticks in the same way. The cords will hold the lease sticks conveniently in place for beaming and threading.

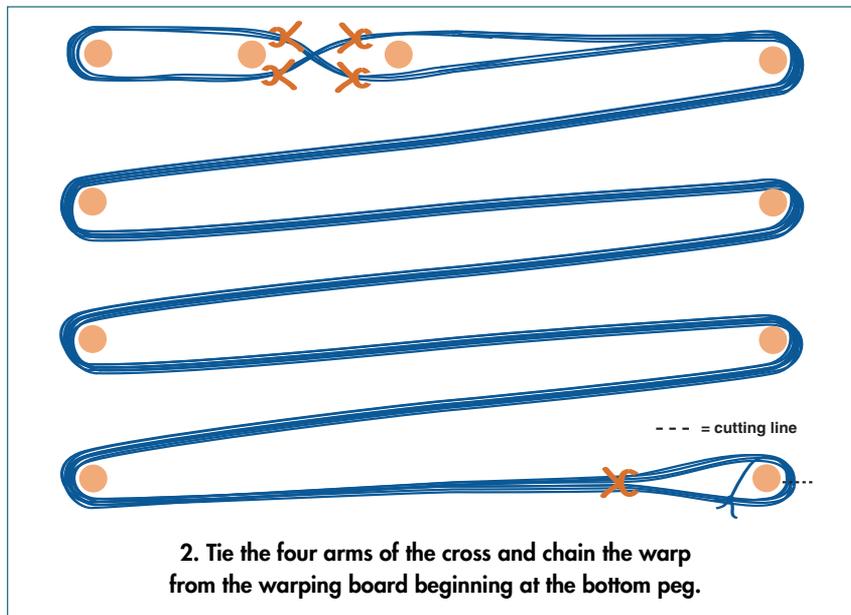
### VARIATION

- You can sley the raddle at a table instead of at the loom (place lease sticks in the cross, a sturdy rod in the end loops of the warp, and a heavy book on the warp chain to provide tension). When the warp is spaced in the raddle and secured with rubber bands, take the warp, lease sticks, and raddle to the loom, secure the lease sticks behind the castle, and tie the rod with the end loops to the warp beam apron rod as above.

## 7 Beam the warp

Divide the warp chain into sections: Run your finger between the two halves of the warp from the breast beam to the floor. Then divide the halves into halves until the whole warp is divided into sections of about 2" each. Pull firmly on each section to straighten and align the warp threads. (Never handle or comb individual threads.)

Keeping the lease sticks tied in place behind the castle, begin winding the warp onto the warp beam. If threads tangle at the lease sticks, go to the front and pull firmly on each section. When the warp encircles the warp beam, begin inserting heavy paper at least 2" wider or warping sticks 2" longer than warp width to separate the layers. Continue, winding a complete turn and then tightening each section at the front of the loom. Maintain the divisions between the sections and vary the order in



which you pull to tighten: from the center out, from right to left, from left to right. Wind and tighten until the cut ends of the warp hang below the lease sticks in a convenient position for threading (long enough to come through the heddles plus about 10").

### TIPS

- As it is beamed, the warp will tend to spread out at the edges. The edge threads will therefore wind on with less density, causing an eventual difference in tension during weaving. To avoid this, tie two very heavy cords or place two C-clamps around the back beam on each side of the warp. Push them against the warp to make it about ¼" narrower on each side than its width in the raddle. The warp will then go onto the warp beam at an even density.
- The warp must be wound very tightly on the warp beam so that the threads cannot change their tension in relation to each other throughout the weaving. To pull firmly on each 2" sections and save the skin on your hands, wrap the section a couple of times around a smooth stick and pull on the stick.
- To clear any tangles, pick up a section of warp near the floor in one hand, pull to apply tension, and then strum the threads with the other hand without allowing them to move in the hand that is holding them.

## 8 Thread the loom

Count the number of heddles required on each shaft by your draft and make sure you have enough. Divide any extra heddles on each shaft so an equal number is placed on each side of the threaded warp. Sitting at the front of the loom, thread the heddles following your draft from right to left if you are right-handed, from left to right if you are left-handed, or from the center to each side.

### TIP

- It is easier to see the warp threads as you thread if the lease sticks are positioned at a slight angle, with the lease stick closest to you below the lease stick beyond it. If you used cords as described in Step 6, place cones of yarn or other objects on the back beam under the cords to raise them at the back.

## 9 Sley the reed

Mark the center of the reed and measure from the center to each side a distance that is half the warp width to position the warp in the center of the reed. Then sley the reed as required by your draft.

## 10 Tie onto the front apron rod

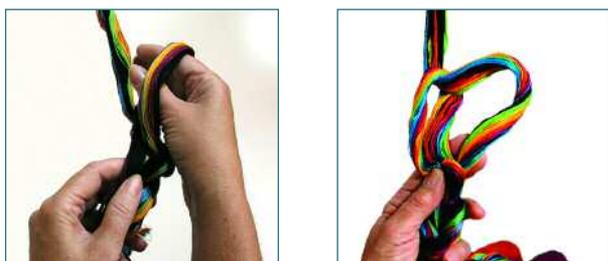
Starting in the center of the warp, take two ¼" groups of warp threads, pass them over and around the front apron

rod (see Photo 4), and tie only the first half of a square knot on top. Continue tying groups, working from the center out, alternating sides. When you've tied half knots for all of the groups, tie the second half of each square knot for each one.

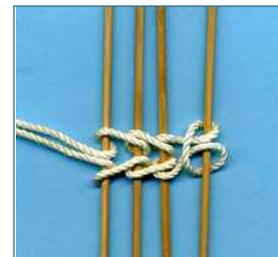
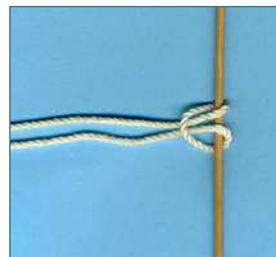
### TIPS

- Very important: Do not make the knots tight. If you do, each succeeding knot, aided by the tension of the others, will be tighter than the previous one. Instead, holding the tails from the first half of the square knot, one tail in each hand, take the two tails toward the reed to eliminate slack, bring them down to snug the knot against the rod (think "snug," not "tight"), and tie the second half of the knot. Notice how this feels, and make each knot feel the same way. This will make the tension even on all threads.
- Tying on in small groups makes it possible to start weaving without needing heavy scrap yarn to spread the warp and aids in providing even warp tension from the start.

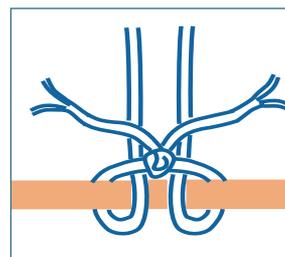
3. To chain a warp, make a loop and pull another loop through it. Pull the next loop through with the other hand and continue.



4. To tie a square knot, wrap the right yarn around the left yarn; then wrap the left yarn around the right yarn.



5. To finger crochet a counting thread, make a lark's head knot around the first group of threads. Bring the tails around the next group and back up between the two tails.



6. To tie the warp onto the front apron rod, pass two warp groups over the rod and tie the first half of a square knot. After all groups are tied, tie the second half of each square knot snug, not tight.

