

Mathematical Concepts

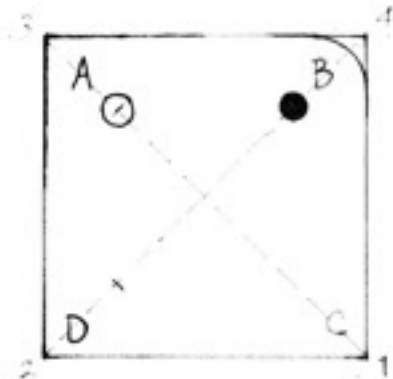
Spring 2013

Card Weaving Instructions

Card weaving, or tablet weaving, uses twisted threads to create patterned bands. Below are instructions.

To make the cards:

Use medium-weight non-corrugated cardboard; the smaller you make your cards the less sturdy they have to be. Cut the cardboard into squares all of the same size, about 3" to a side; each cardboard square will be one card. On one side of each card, draw the two diagonals (1), then make a mark on the lines $\frac{3}{4}$ " from each corner (2). Punch a hole in each corner, centering the hole-punch over each mark (3). Then round off the corners (4); this prevents the cards from getting caught on the threads while weaving. You can now erase all the markings on the cards. Now label the holes A through D, starting at the top left and moving clockwise. I recommend using pen for this since these labels are permanent.



The picture to the left shows the steps in constructing a card, starting in the bottom right corner. The letters A through D were added after the card was constructed. To the right is a manufactured card.

To warp the cards:

When you weave, the threads that you start with are called the warp. The process of preparing the warp for weaving is called warping. To begin, have all your warp threads cut to the same length and the cards numbered. Take four threads and lay them out together on a flat surface with their ends lined up. At the right-hand end of the threads, put one thread through each hole of card 1, all from the same direction with the card facing down, that is, either from below the card up through the holes (front to back), or from above the card down through the holes (back to front). Pull the card a few inches to the left, then tie the right-hand ends together with an overhand knot. Your first card is now threaded. Continue in the same manner, stacking the threaded cards one upon the next, making sure that all the cards are oriented the same. When you have finished with all your cards, put a strong rubber band around your stack of cards, and slide the cards together along the warp away from the knotted ends, until there is enough room to tie all the knotted ends together in one large overhand knot. Secure this end to something very sturdy. Slide all the cards down the warp, maintaining an even tension across all the strings, until you reach the other end, untangling as you go. The “top” (marked) side of the cards should be facing to the left. When the tension is even, tie the ends together in an overhand knot. Now you are ready to weave!

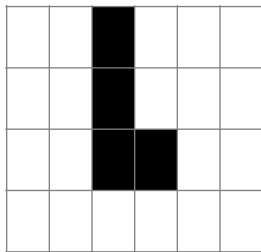
To weave:

It is necessary to keep the warp taut while weaving. One way to do this is to secure the loose end to a belt around your waist and advance it as you weave. You can even just hold the end with one hand, but this is more difficult and less efficient than the other way. You will want to have a rubber band around the cards when the warp is not under tension so that the cards don't get tangled and disorganized. To begin weaving, pass some yarn through the shed, leaving a tail of about six inches. Rotate the cards, either toward or away from you, and bring the yarn back through, packing it down so it is right next to the first, and pulling the end until there is no loop. Yarn thus put into the warp is called the weft. Card weaving is a warp-faced weave, meaning that

the pattern is created with the warp, while the weft just holds it together. The weft does not show except for at the edges, so it is best to match the color of the weft to the color of the outer warp threads.

Patterns:

Since card weaving is warp-faced, the pattern is determined by how you thread the cards and how you turn them. A pattern for threading the cards might look like this:

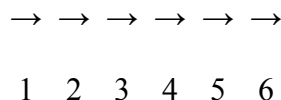


A

B

C

D

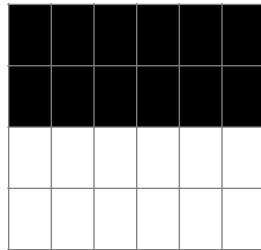


Each column represents a card, and the rows represent the holes on each card. This pattern has only two colors: one represented by a blank square and the other by a shaded one. The arrow along the bottom means that all of the cards are threaded back to front. Since all of the squares in columns 1, 2, 5, and 6 are blank, those cards are threaded entirely with blank-colored yarn. Column 3 has three shaded squares and one blank square. The shaded squares are in rows A, B, and C, so card 3 has shaded-colored threads through holes A, B, and C, and a blank-colored thread through hole D. The same logic applies to card 4. In weaving this, a pattern like an L will emerge if you turn continuously in one direction. Turning one direction will make L's, while turning the

other direction will make up-side-down L's. When you reverse the turning direction, the orientation of the L's will also reverse.

Double-faced Weave:

One special technique in card-weaving involves cards threaded thus:



A

B

C

D

1 2 3 4 5 6

It is called double-faced weave since by starting with the side containing holes A and D of all the cards facing up, and then turning twice in one direction and twice in the other and so forth, you create a band that is one color on one side, and another color on the other side. This can then be manipulated to form any shape you like. In order to change which color is on top for any card, turn it *four* times in one direction, and then return to the 2, 2 turning pattern until you wish to change back. Then just make four turns in the same direction and you will be back where you started! Note that when you do this you will be turning some cards in one direction and others in the other. In order to avoid confusion, it is best to keep differently turned cards spatially separated. Make sure to turn *both* sets of cards each time you pass the weft. Note that there are no arrows. The threading direction varies and can even be changed while weaving by flipping the cards about a vertical axis.

Yarns:

Card weaving works best with smooth, strong yarn that will withstand abrasion, tension, and twisting. Cotton is ideal since it meets the above criteria, is readily available in many colors and sizes, and has some give. Even though linen as well meets all the criteria, it is harder to find and has no stretch whatsoever. Note that while you don't want *stretchy* yarn, it is good to have just a little give so that a slight variation in tension does not cause a disaster. Also note that tension variation can occur during and on account of the weaving. Silk is also good, but it is expensive. Wool often is not strong enough, and has a tendency to stick to itself, making the cards difficult to turn. However, wool sold for weaving should work, but it will still be more difficult than cotton. Generally, soft, fuzzy yarns are not suited to card weaving.

Resources:

Below are listed some resources for card weaving information.

Card Weaving, by Candice Crocket, published by Interweave Press. This is the book I used to learn how to card weave.

Weavershand www.weavershand.com for links to information about card weaving.

Weavers and Spinners Society of Austin www.wssaustin.org This is the local weaving organization, and many of its members are knowledgeable about card weaving, as well as other techniques.