



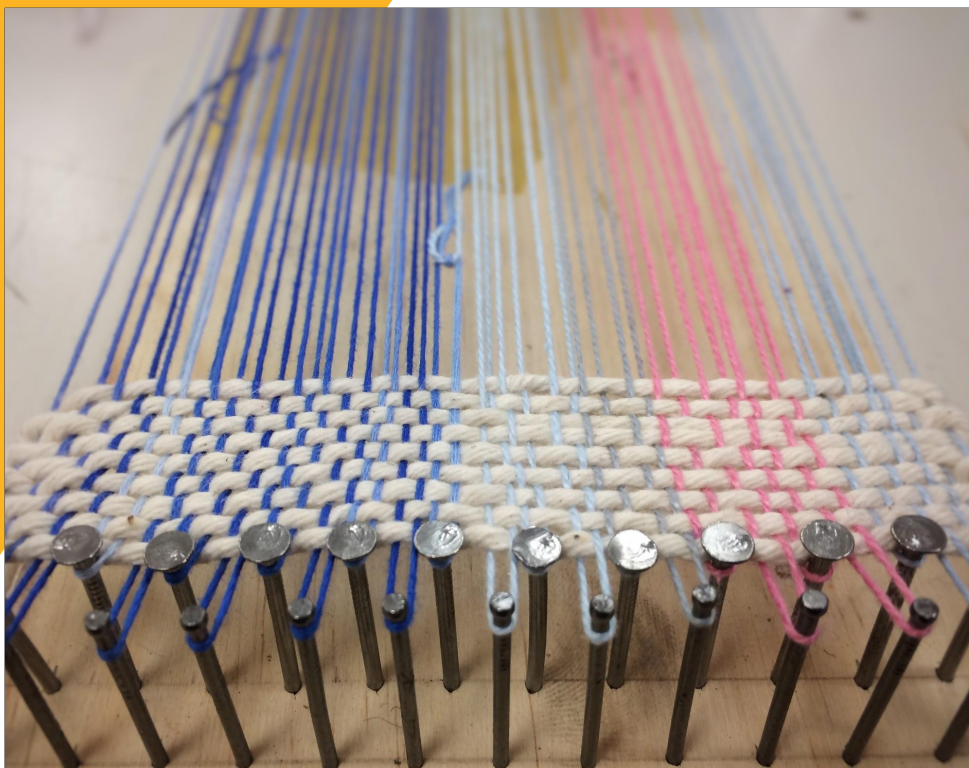
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WEAVING LOOM

A Guide from the Creativity Lab



Simple Weaving Loom created with a scrap wood board and nails

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Based on

String Art Project

by Amy Dobras



About This Project

Weaving is a versatile technique that can be adapted to different grade levels and different materials, from cardboard to wood and nails, scraps of fabric, conductive thread and LEDs. It is one of the oldest surviving crafts, and is now at the forefront of wearable technology as it is highly customisable in terms of materials used and weaving techniques. It can reach different levels of complexity, so is therefore suitable for a range of grades. Creating a loom is low-cost (scrap and recycled materials can be used) and easy, provided a bit of patience is used. This guide will introduce weaving using a basic wooden loom and a plain weave.

Weaving is an ancient technique and has historical, artistic and political connections. The oldest examples are from the Paleolithic era. In the Americas, the first textiles date back to 1,100 BC. During the Industrial Revolution in Britain, weavers (Luddites) revolted against low wages and poor working conditions, brought on by mechanised looms. In the Southwest USA, textile craft was important within Pueblo, Zuni and Ute tribes.

There is an array of myths, tales and cultural connotations linked to weaving that can be explored in each class (e.g. identity, symbolism etc.).

Our Story

This project came to mind after witnessing a 7th grade making class of String Art, led by Amy Dobras. Inspiration came to create a simple loom from the same materials and tools. A similar project had already been done with cardboard for a Kindergarten class. This project guide is an expansion on the simple card loom.

Materials & Tools

MATERIALS

- Wood board (any dimension)
- Nails
- Embroidery Thread or String
- Different yarns
- Cardboard
- Hair comb (optional)
- Thick Needle (or toothpick)
- Masking Tape

TOOLS

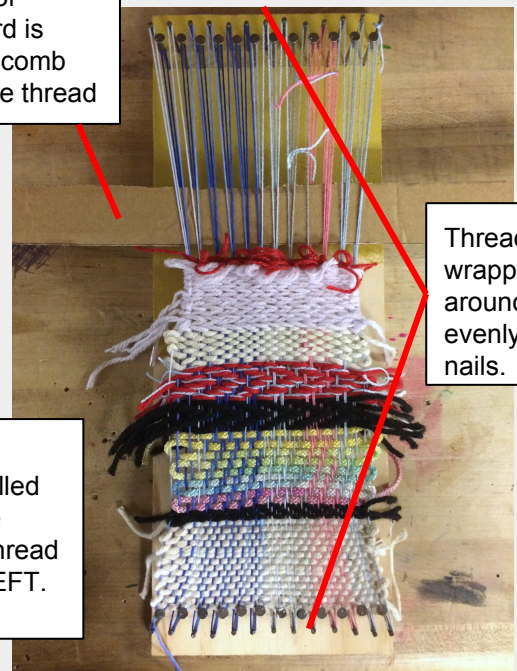
- Ruler
- Pencil
- Box Cutter
- Hammer

TIME: ≈ 30 minutes to construct

A piece of cardboard is used to “comb down” the thread

Thread is wrapped tightly around a row of evenly distanced nails.

The vertical thread is called WARP. The horizontal thread is called WEFT.



This loom has different weaving methods to show varying complexities and results.

Context: Before We Start...

Interdisciplinary and Real World Connections:

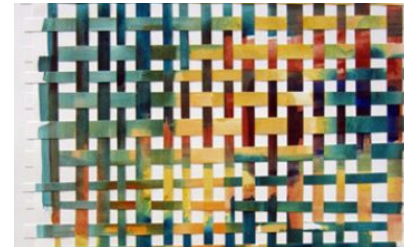
- What is a fabric, what materials make up a fabric, what are its characteristics?
- What is a fiber, what is it made of, what does it look like?
- How do woven products contribute artistically and economically to society?
- What is the history of people who weave, across the globe? What do their products mean?
- Observe a weaving pattern. How can it be considered a geometric structure?



[Weaving Projects for Schools](#)



[Fiber Art, Text and Community](#)



[Weaving Matrices](#)

Material Management

- Show students different kinds of looms (hand, machine) and allow them to look closely at the parts, what their purpose is, explore the design of the loom.
- Invite the students to explore what kind of materials could be used, either for the frame or for the weaving itself (paper? fabric? wire?), Can elements be added (beads, LEDs?)
- Invite students to observe fabrics and textiles in their everyday lives. What is woven? Why do they think it was woven that way, or with those materials?

How To Organise Tools & Tech Safely

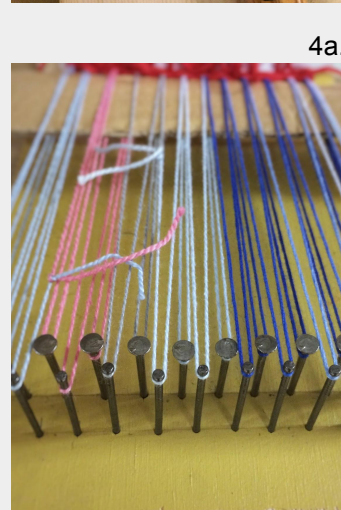
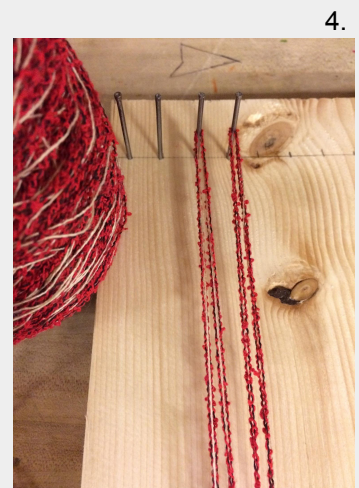
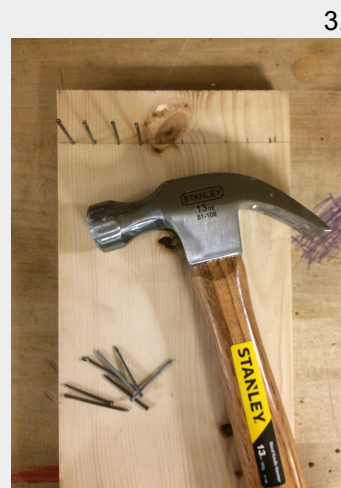
We recommend that materials, tools and technology equipment for this project be organized by items that are readily available to students vs. materials that are stored in a teacher-access only storage. Hammers and saws can be distributed by the teacher. Nails, wood and yarn can be made accessible to each student.

- Exercise caution when using the saws and hammers. Goggles are recommended.
- Be careful when using needles as they might prove sharp to touch.
- Organise yarn neatly, as it can become knotted and tangled very easily.

Building the Loom

PREPARING THE LOOM

1. Measure the block and decide how many nails you want for each row (the more nails the more intricate the final design will be. You can choose to make one single row or two staggered ones).
2. Ideally use flat head nails so the thread doesn't slip off the top.
3. Hammer the nails in the block evenly
4. Thread the yarn or string onto the nails by wrapping around them. This thread is called the warp and is the vertical structure for the weave.
 - a. To get a more dense weave use two rows of nails. Thread the yarn alternately onto the two closest nails, even if they aren't in the same row
5. Cut out thin strips of cardboard. These will be your comb and will push down the weft (horizontal) threads on each row.
6. You are ready to start weaving!

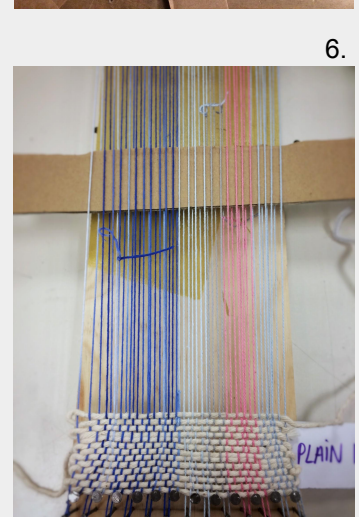


Notes

Online resources for weaving ideas and techniques:

[DIY Your Own Loom](#)
[Weaving Techniques](#)
[Cardboard Loom](#)

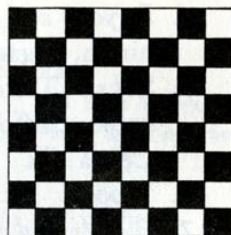
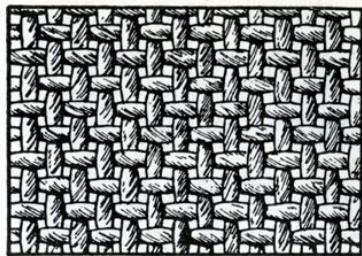
[CNC Weaving Loom](#)
[Circle Weaving](#)
[Weaving with Conductive Thread](#)



How To Weave

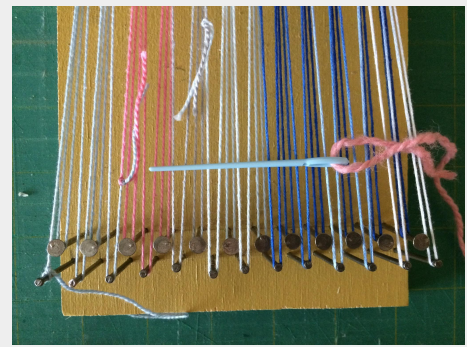
This is a step-by-step guide on how to create a **plain weave** on our constructed loom. This is a most basic but dense weave. For different techniques, tutorials can be found online or in the Creativity Lab ("Weaving On Cardboard").

1. Thread your needle with the weft yarn. Start from right to left.
2. Go over the first warp thread, then under the second, over the third and so on. Reach the end of the row.
3. Leave at least an inch of yarn on the right side of the first row, where you started. Pull the yarn to tighten it over the warp.
4. Push the cardboard strip down on the row of yarn to compact it evenly.
5. Now you will start alternating the needle through each warp yarn for the rest of the weave. Each row will start on the side where the previous row ended, and the weave will alternate. Alternating means, if on the first row you ended with the needle OVER the last warp yarn, on the second row you will start with the needle UNDER the first warp yarn of that row. The simple weave looks like a grid:

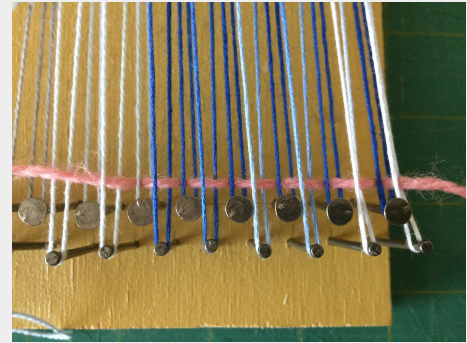


After each row remember to pull down the cardboard strip to make the weave even and compact. Once you are done just cut the warp threads off the nails and tie it off!

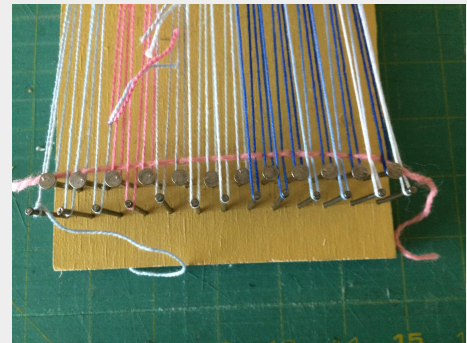
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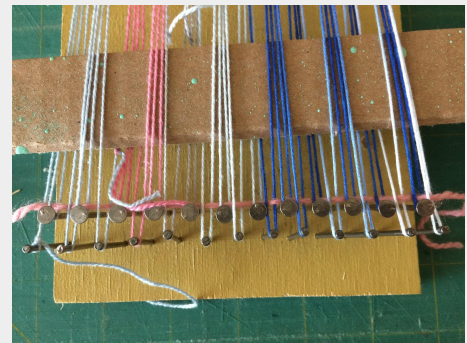
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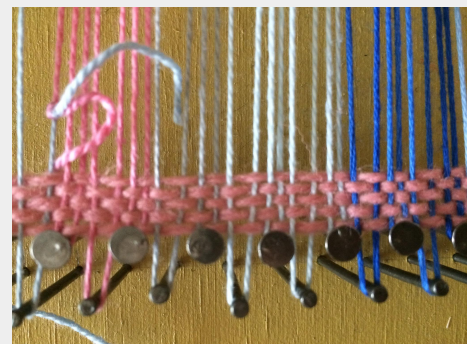
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4.



5.



Project Extensions

Weaving can be introduced as a product in different classes that touch on:

-Culture/History/Ethnic studies: weaving is an antique tradition from different cultures across the globe. It has symbolic associations in Mayan and Navajo myths, and has been central to indigenous women's economic contributions and self-empowerment. Mayans in particular have used weaving as a way of transmitting design that conveyed their vision of the world. Weaving can be framed as an interesting project that revolves around personal and family identity.

-Math: weaving follows a grid pattern and geometric patterns. Creating a bitmap/vector image and printing it can be [used as a stencil](#) underneath the warp threads.

-Science/Technology: weaving allows to create a personalised fabric that can be conductive, waterproof, etc.

Resources

Books and Articles

- [History of Women, Weaving and Making](#) online article
- [Weaving in Mayan Culture](#) online article
- [Weaving and Making](#) online article
- [On Weaving](#) by Anni Albers

Textile Artists

- Sonya Clark
- Issey Miyake
- Ada Dietz
- J.C.P. Miller
- William Morris

Places and Companies

- [San Jose Museum of Textiles](#)
- [De Young Museum](#)
- [Adafruit \(wearables\)](#)