



## How to Make a Simple Stick Loom

1. First, go on a stick hunt! Forage for four sturdy sticks that are pretty straight and about the same length. You can trim them to be equal lengths if you need to.
2. Tie your sticks together so they form a square. Use your string or yarn to tie the sticks together at each of the four corners. You want your sticks to make four right angles, like a square or box. Tie them tightly, so they will stay together.
3. Now you are going to make your “warp,” or the vertical strings that you will use to help you weave your natural materials on the loom. Cut about two feet of string or yarn, enough to span your whole loom. Wind the yarn at the top and bottom of the two horizontal sticks (see picture). Be sure to tie the string tightly, but not so tightly it makes your loom frame bend out of shape.
4. Each string should be slightly separated from the ones next to it, so that you can weave your natural materials between them.
5. Think about what plants you want to weave into your design. Here are some plants and grasses you might find:

**Look out for poison oak and poison ivy, and never eat any wild plants unless you and an adult can identify them.**

- Wild Carrot
- Baby Blue Eyes
- Deer Fern
- Dandelion
- Sunflower
- Giant Chain Fern
- Bigleaf Sedge
- Oregon Cherry
- Willamette Daisy

**Difficulty Level:** Medium for ages 8-10; Easy for ages 10-14; Ages 2-7 may need help

**Objective:** Make a simple stick loom

## Materials

- Four sturdy sticks or branches
- Scissors
- String or yarn
- An assortment of grasses, flowers, and flexible plants

## Procedure

Grasses are fun to weave with, because they are thin and very flexible. What flowers have long stalks and would be good to weave with?

If a flower or plant isn't long enough to weave through your entire loom, that's all right. You can use a different plant to fill in the empty spaces.

6. Go out and forage for the natural materials to weave into your design. Be sure to ask first if you are collecting materials anywhere except your own property.

7. Bring your natural materials back, and sketch the pattern you want to make in your notebook-- or just start experimenting, and see what happens! What sort of patterns can you make?

To weave, you will bring the grasses or flowers under one thread and over the next. We can make a code to show how to weave:

For Example:

X = Underneath thread

O = Over thread

Row 1 (Grass)/Under/Over: XOXOXOXOXO

Row 2 (Grass)/Over/Under: OXOXOXOXOX

Row 3 (Dandelion)/Under/Over: XOXOXOXOXO

Row 4 (Baby Blue Eyes)(Grass)/Over/Under: OXOXOXOXOX

Row 5 (Wood Rose)/Under/Over: XOXOXOXOXO

### **Tips:**

When you get to the end of each row, leave some of your plant left over, like a tail. You can tie it around the end of your last string, to keep it in place.

When you weave each row, gently push it down close to the rows beneath it.

If you weave your design tightly, you can cut the strings and hang it on the wall. Otherwise, you can remove the natural materials and replace them with other plants when they begin to wilt.

## **STEM Connection:**

Looms are related to computers! In 1801, Joseph-Marie Jacquard improved on a design for an automatic loom by making it programmable with punch cards. This Jacquard loom inspired later engineers, who used the design as a reference in developing the first computers.

Shortly after, Charles Babbage developed a machine to do complex calculations. He called it “the difference engine” and it followed instructions on punch cards. Babbage got his idea from seeing automated Jacquard looms at work. His friend Ada Lovelace, a brilliant mathematician, helped

him work out the calculations. She also recognized that if a programmable loom could make beautiful complex patterns with fibers, an analytical machine might be able to be programmed to do much more than just acting as a superpowered calculator. She is known as the grandmother of computers!

Take a picture of you with your loom, and share it with us, so we can see what you made! For more engineering projects and science activities, [subscribe to our newsletter!](#) Have an adult send it to [online@scienceworksmuseum.org](mailto:online@scienceworksmuseum.org) or share it using the hashtag [#ScienceWorksOnline](#)