



# Digitizing Looms

Laser cut looms for weaving

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101006203.

# Digitizing Looms

Use digitally fabricated looms of different sizes and shapes, learn how they are being made and make your own woven creation.

Art + Textile + Digital  
Fabrication





# shimakus

**Our Network**

**Our philosophy /  
values**

**Our work so far**

**Be part of  
the  
change**



# What are we learning today?

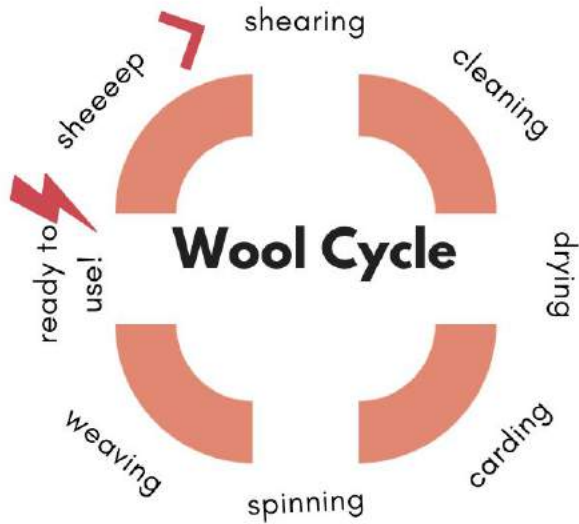


We will...

- get to know about the WOOL CYCLE!
- Know the possibilities of the 3d printer and the lasercutter and their applications to textiles
- try to weave using small looms
- use the looms to make a bracelet, a saucer, a small decorative piece or whatever you can imagine



# Wool cycle



## Processing wool

- How long do you think the process takes?
- Can we start the process at any time of year?



# Steps of the Wool cycle: Carding



image source <https://saitalenas.gr/>

OK so I can imagine what shearing, cleaning, drying, weaving are but what about...?

## Carding

we card wool in order to separate and align the fibers so that combing gets easier later.



# Steps of the Wool cycle: Spinning



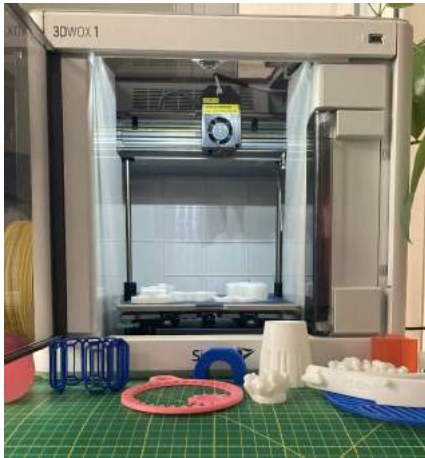
image source <https://saitalenas.gr/>

## Spinning

It helps the fibers to lock to prevent your yard from breaking when weaving.



# Digital Fabrication: Laser cutter and 3D printers



- How does a lasercutter work? what materials can we cut out in each case?
- Why not fabricating stuff by hand? what are the benefits of digital manufacturing?
- What is additive manufacturing? How does a 3d printer help us make our own designs? how long does it take to print a small shuttle?





# List of materials

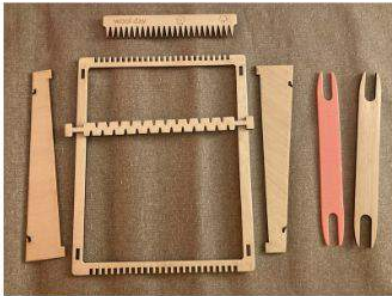


1. Kit of parts for each loom design ([File](#))
2. superglue
3. yarns of different colours
4. pairs of scissors (right and left handed)



# Step 1: Choose a loom

Select the type of loom that suits to your design:



the biggest in size  
kit

20cm x 15cm  
designs



smaller kit

10cm x 10cm  
designs

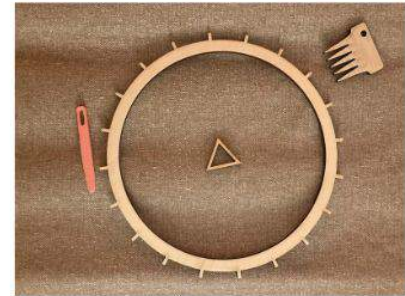
ideal for rectangular  
saucers



tall and narrow kit

3cm x 22cm designs

ideal for bracelets  
or bookmarks



circular kit

15cm designs in  
diameter



## Step 2: assemble the loom



Depending on the loom you chose, you may have to assemble the legs onto the main part.

It should be a press fit but you can add some superglue to fix it well if needed.



## Step 3: Wrap the loom : frame loom

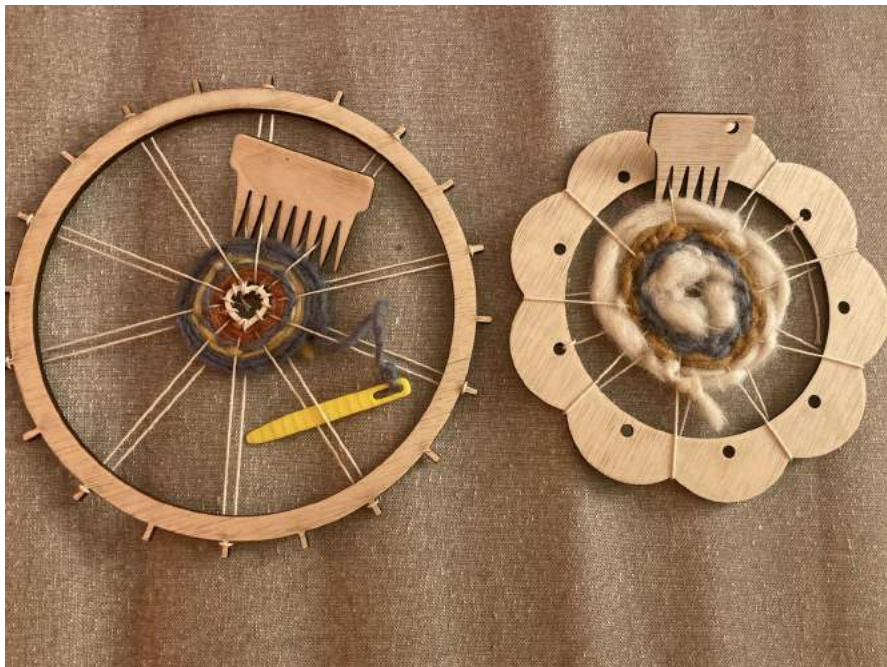


- Make a loop with your fingers and attach the thread to one of the “tooth” on the top beam.
- Pull the thread and wrap it around a corresponding tooth on a bottom beam.
- Hook it around the bottom tooth and stretch it back to the top bar.
- Make a loop at the end



## Step 3: Wrap your loom : circular loom

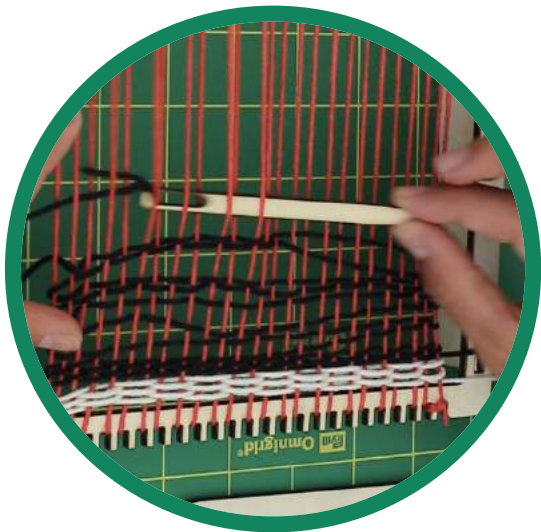
You can improvise wrapping a circular loom or do it the sophisticated way, with either a center-piece that leaves a small hole in the middle, or with the threads meeting in the middle.



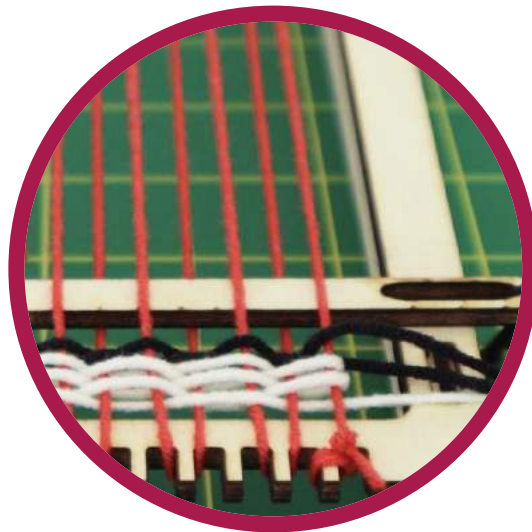
Tie the end of the thread to the ring and, once it is secured, cross it diametrically to the opposite end, passing it underneath and around the dent. Then take the thread back to the other end, and place it diagonally around the dent. Repeat the process until your warp has gone all the way around. You can skip a dent if you like. If you want to place a small item in the middle, the process is the same, only that you have to already calculate the amount of thread you need from the beginning. It is more or less 2 meters.



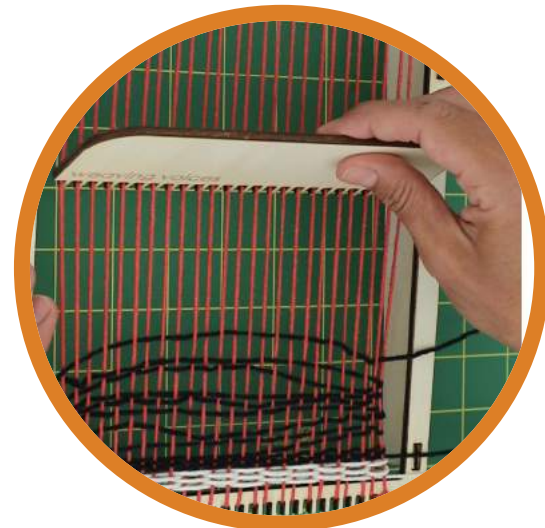
## Step 4: Weave



Tie a notch to the weaving shuttle and use the shuttle to take the yarn from one side to the other.



The shuttle should weave under one thread and over the next one.



Use the comb to tamp the weave down so that it is all snug together



# Enjoy and share the creations!





**Go beyond...**

**Is there anything you need  
that you can weave?**

**What other materials can you  
use for weaving?**





**Next steps...**

**Share your creations :**

**We love to see different designs,  
please share yours on IG and tag  
**@shemakes\_eu @fablableon**  
**@decoddefablab @you****

# sh mak s

ευχαριστώ

[www.shemakes.eu](http://www.shemakes.eu)



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