



# Felt Facts

Resource for  
Felting Workshops

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# Materials List

To complete the project you will need:

- Wool tops
- Bubblewrap
- Thin plastic (painters drop sheet)
- Soapy water & container to sprinkle with. I use a bottle with little holes in the lid.
- Cake of soap - vegetable oil based. Do NOT use detergent it creates too many bubbles and makes the wool slippery.
- Scissors
- Resist material (discussion further down)
- Permanent marker
- Ruler
- Calculator
- Quality packing tape 3M Bear Brand is best - it is a little more expensive but it stays stuck longer
- Unwaxed linen thread or fine string
- Needle to suit

Optional – Electric sander (without sand paper) and an electrical cut off switch. This is extremely important DO NOT proceed without a cut off switch, as you will be using an electric power tool near water. Water and electricity do not mix. Both are available from hardware stores. Of course a cordless rechargeable sander eliminates this danger. Hearing protection - sanders are noisy and prolonged use will damage your hearing, again headphones can be bought from hardware stores for under \$10.

It does not matter what you use as a resist as long as it separates the wool, having said that there are a couple things to consider. The resist material needs to be strong enough to hold its shape, be water resistant, and have a surface you can draw on and easily cut. I use Closed Cell Polyethylene foam that is sold on a roll as insulation or floor protection during construction; it is available at most hardware stores.



## Preparing your workspace

Make sure you have all your materials and tools ready. I like to work on bubblewrap (bubbles up) with a sheet of thin plastic - painters drop sheet plastic.

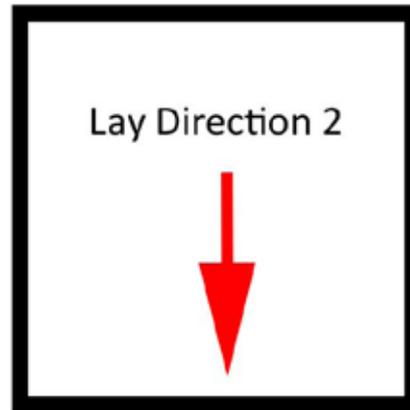
1. Prepare your soapy water for wetting the wool.
2. Place a cake of soap onto a piece of bubblewrap or in a soap dish anything as long as you can rub your hands over it easily.
3. Keep your wool handy - handle the bulk of your wool with absolutely dry hands.
4. Have a towel or two handy - I have one on my lap for wiping my hands, one on the floor to catch spills and one on the table to mop up excess water.

# Step 1 – Preparing the wool

The first stage in making felt is laying down wool. I use three terms for handling wool, each describes a nuance in technique they are: laying, layers, and layering.

## Laying

This is the base technique for making felt - laying down the wool in two layers and "cross hatching" the wool. Lay a row of wool followed by a slightly overlapping row, and continue until you have one layer.



Repeat the process for a second layer but lay the wool perpendicular (90° to the first layer) to create a cross hatch effect.

Pat the wool down in between layers, this keeps it in shape and reduces air bubbles when wetting down.

## Prelaid vs Insitu

There are two variations on laying down wool and it is where you lay it. I call them prelaid and insitu. Prelaid wool has been laid flat, wet, pressed, and slightly prefelted before it is used for resist and cutting techniques. In situ is wool that is laid, wet and slightly prefelted directly onto a resist or "in place".

## Layers

A layer is every time you lay down a complete covering of wool. The number of layers will influence shrinkage rates and fulling time; the more layers you have the lower your shrinkage rate will be and it will take longer to full. In addition to this, if there is an odd number of layers, or if more wool was laid in one direction than another, the felt will shrink at 2 different rates. One for each direction, which will be different, and dependent, on each project you undertake. Shrinkage can be affected by the layers of wool, the type of wool, the thickness of the layers, the embellishments, and even the way you full your felt. See Shrinkage Rates discussion further down.

## Layering

A layering is a number of layers that are laid either at different weight or colours. Like a group of layers and there are two ways to use layerings, one for shape and the other for embellishments.

## Wetting the wool

The wool must be wet down with soapy water as part of the process, and again there are many ways in which to do this. There is also much debate over the type of soap to use. I can only tell you what I have found works - I use olive oil soap that I make into a paste that resembles "Silly Putty". It becomes long and stringy making it easy to use for two purposes. I dilute the stringy paste down for wetting the wool in general, and secondly, it can be used to run your hands through when handling the wet wool.



I like to use the "less is more method" when wetting down, sprinkling the wool lightly but evenly with a plastic bottle with holes in the lid. I then place a piece of bubblewrap over the wool and press down to ensure the water is absorbed through all the wool and not just in patches. If you use too much water the wool will stretch while you are working with it, which can be disastrous when working with complex shapes, leaving you with an incorrect shape or stiff ridges where you did not want them.

## Step 2 - Prefelting

Prefelting is the stage before fulling when the scales open on the wool fibres and they cling together - how much they cling together is the key to the process. Prefelting can be achieved through various methods, I use a combination of an electric sander, hand massaging, scrunching and rolling. I have written a previous booklet on How to Make Felt using 3 different methods, including the sander to prefelt. I often use multiple methods on the same project. Complex shapes with vanes and fins can be a little difficult to sand so I soap up my hands and massage the felt. I also like to use everyday items to get into the nooks and crannies of objects.

## When is it prefelted?

At a minimum level of prefelting you should be able to handle the wet wool without it falling apart, even if you do manage to full a piece that has not been prefelted sufficiently, it will be fluffly, or lumpy, or both. At the other end of the scale a robust prefelt forms a skin making it difficult to pull the wool fibres apart but it has not shrunk a lot. In some circumstances you can prefelt too much, for example; if you prefelt too much in between layerings, the layerings can stick to themselves and not each other therefore causing delamination. If you intend to join prefelts together, either by stitching or encasing, and they are prefelted too much, they will not adhere to each other easily or possibly even at all.

## Step 3 - Fulling

This is the process that closes the scales allowing the piece to shrink to its final size. Fulling should always involve some kind of tossing or tumbling and I mainly use a two part process; my hands and the tumble dryer.

Before starting to tumble, reduce the amount of water in the piece either by gently squeezing it or mopping it with a towel. Then gently toss the piece from one hand to the other until the texture of the felt changes, occasionally stopping to squeeze more water from the piece. The texture will become "dimpled" it is called achieving "crimp", but it will not have shrunk to its final size. You could continue in this manner to achieve complete fulling but I prefer to use a tumble dryer.

Ensuring the piece is not too wet place it in a plastic bag, tie the open end, and place it in the tumble dryer on a cold setting for a few minutes then check that it has not stuck together in an inappropriate place. Keep checking until it has shrunk to its final size.

It is now time to stretch, pinch, position or stuff your piece. Whatever shape you want your piece to retain will be determined now. While the felt is still wet manipulate it into the desired shape: stuff a 3D hollow form with plastic or cushion stuffing, place a hat on a block, pin a curl into place, use whatever tools you have to secure the felt's shape. Some felters steam their felt to secure the shape. Leave to dry!

# Shrinkage Rate Calculations

Before commencing a new project make a sample piece first, this will give you lot of information about your felt and most importantly it will give you a shrinkage rate. Felt shrinks when it is fulled and many things affect this rate, things like:

- Number of layers of wool
- Which direction they are laid in
- How much fulling you do
- What decorations, fabric, silk, yarn etc you have used

Therefore the only way to ensure the dimensions of the finished piece is to make a sample using the type of wool, techniques and decorations you intend to use in the finished piece.

1. Cut a piece of bubble wrap 30cm x 30cm square to use as your sample template, this is

Measurement A.

2. Create the sample using your preferred method and full it to the necessary point.

3. To calculate the shrinkage rate measure the final size of your sample, this is called Measurement B.

4. The shrinkage factor is calculated by dividing A by B.

For example A =30, B =16 then  $30 \div 16 = 1.875$ . This is your single shrinkage rate.

If the finished sample is longer one side than the other, then use an average of the measurements.

For example A =30, B =16 x 14.5 (average of 16 and 14.5) use 15.25 then  $30 \div 15.25 = 1.96$

Measurement A 30cm x 30cm	$\div$	Measurement B 16cm x 14.5cm Avg = 15.25	=	Shrinkage Rate 1.96
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If there is a large difference, the anomaly could be in the laying technique or the fulling process. One layer may be thicker than the other; there may have been a hole or thin patch in one layer. When fulling, one part may have been more intensely worked than the other. If in doubt do the sample again.

If you lay your wool in one direction only or have more layers in one direction than the other, you will have a different shrinkage rate for the length and width. The rate is calculated in the same way but there will be two calculations one applied to the width measurements and the other applied to the length measurements. Your template will end up looking strange but the different rates will take care of this in the fulling process.

For example:

Length Shrinkage Rate:  $30 \div 15 = 2$

Width Shrinkage Rate:  $30 \div 22 = 1.36$